**UNITED STATES DISTRICT COURT**
**SOUTHERN DISTRICT OF NEW YORK**

CASSAVA SCIENCES, INC.,

Plaintiff,

v.

DAVID BREDT; GEOFFREY PITT; QUINTESSENTIAL CAPITAL MANAGEMENT LLC; ADRIAN HEILBUT; JESSE BRODKIN; ENEA MILIORIS; AND PATRICK MARKEY,

Defendants.

Civil Action No. 22-cv-9409-GHW

**SECOND AMENDED COMPLAINT AS TO DEFENDANTS HEILBUT, BRODKIN, MILIORIS, AND MARKEY**

**Jury Trial Demanded**

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Plaintiff Cassava Sciences, Inc. ("Cassava" or "the Company"), through its attorneys, brings this Second Amended Complaint ("Complaint" or "SAC") against Adrian Heilbut, Jesse Brodkin, Enea Milioris, and Patrick Markey (collectively, "Defendants") for defamation *per se*.[1]

## I. INTRODUCTION

1. Defendants placed personal enrichment over science, over the health of patients, and over the truth. Defendants saw an opportunity to manipulate a stock price and financially benefit from their "short positions" by defaming a company developing a drug for people with Alzheimer's disease, a condition that afflicts millions of people. Defendants seized that opportunity and, while enriching themselves, caused irreparable harm to the company, its attempts to find a treatment for the disease, and patients waiting for that treatment. Defendants' conduct is beyond shameful. It is unlawful.

2. Cassava is a clinical-stage biotechnology company based in Austin, Texas. It is publicly traded on the NASDAQ stock market in New York. Cassava is developing a drug called "simufilam" as a potential treatment for Alzheimer's disease, which afflicts 6 million people in the United States and millions more around the world. The drug has not yet received approval from the U.S. Food and Drug Administration ("FDA"), but clinical trials are under way.

3. Cassava has been developing simufilam for over a decade at a cost of over $200,000,000. Simufilam has successfully completed several phases of testing and, after extensive review, was greenlighted by FDA in 2021 for late stage, "Phase 3" testing. Two randomized

[1] The Court dismissed Cassava's claims against Defendants Bredt and Pitt with prejudice. *See* Mem. Op. & Order (ECF No. 119) at 55. The Court likewise found that the majority of the defamatory statements published by Defendant Quintessential Capital Management were not actionable. *Id.* These findings were clearly erroneous, contrary to the law, and inconsistent with the alleged facts. Cassava will be filing a motion for partial final judgment as to its claims against these defendants to pursue an immediate appeal of the Court's order. Cassava's First Amended Complaint remains the operative pleading as to those defendants. This, the Second Amended Complaint, is the operative pleading as to Defendants Heilbut, Brodkin, Milioris, and Markey, although Cassava reserves the right to appeal the Court's ruling related to other previously dismissed statements published by those Defendants.

placebo-controlled Phase 3 clinical trials of oral simufilam in patients with Alzheimer's disease dementia are fully enrolled and currently underway. The results of the first Phase 3 study are anticipated approximately year-end 2024. The results of the second Phase 3 study are anticipated approximately mid-year 2025.

4. The Company's successful efforts at developing and testing simufilam should have been grounds for optimism within the Company and the Alzheimer's community. Alzheimer's disease is a terrible condition that robs people of their memory and causes a long, slow death. Because Alzheimer's disease is such a complex disorder of the brain, successful treatments have been elusive. The time, effort, and money that Cassava had invested in tackling this challenge appeared to be paying off as simufilam showed promise as a treatment. More work was left to be done but Cassava was heading in the right direction.

5. Unfortunately, Defendants had another plan in mind. In Cassava, Defendants saw an opportunity for profiteering. As investors and patients learned about the Company's successful completion of early clinical testing for simufilam, the stock price of Cassava began to rise. As Cassava's stock price increased, Defendants decided they could personally profit by publishing disinformation about the Company, which would cause its stock price to plummet. The practice of profiting from a drop in stock price is called "short selling." The practice of profiteering by publishing false information that causes a drop in stock price is called "short-and-distort."

6. Starting in November 2021, and continuing through today, Defendants embarked on a multi-prong disinformation campaign against Cassava while taking sizeable short positions in Cassava's stock to earn substantial profits from the market's negative reaction to their disinformation campaign. Defendants' actions were not motivated by a desire to further a scientific

debate. Defendants were motivated by personal fortune, a desire to make a name for themselves, and hope to hurt Cassava and its officers.

7. The overall message conveyed by the Defendants' disinformation campaign was that Cassava engaged in fraudulent and illegal activity by, among other things, fabricating test results and lying to government agencies and investors. Defendants pressed these charges primarily through social media postings, but also through reports that they published and republished on various open-access websites. In all, Defendants published ***over 70 false and defamatory statements*** about Cassava.

8. Defendants' disinformation campaign conveyed a precise, powerful conclusion: Cassava, which Defendants labelled as "Theranos 2.0," engaged in fraudulent and illegal activity so investors should run away from the Company. This is what Defendants wanted and needed. Defendants had taken "short" positions in Cassava's stock. They bet on the Company's stock price falling. As Cassava's stock price fell based on their disinformation, Defendants personally made money. It was easy money, albeit ill-gotten.

9. Cassava, of course, did what it could to stem the negative tide. Cassava responded to Defendants' false attacks with a factual rebuttal. It submitted information to science journals for validation. It cooperated with agencies (private and public) that had questions stemming from Defendants' disinformation. Cassava even filed the instant lawsuit. Unfortunately, even that did not stop Defendants' defamatory onslaught.

10. Over time, Defendants' lies have been exposed. Cassava did not manipulate any tests or results relating to simufilam. As set forth below, multiple independent studies have confirmed the scientific underpinnings of simufilam, and Phase 3 clinical trials are well underway. But the damage has been done. Cassava's name and brand has been tarnished. Clinical testing of

Cassava's drug for people with Alzheimer's disease was delayed. Testing sites ran away from participating in Cassava's clinical trials. A potential drug for Alzheimer's disease is delayed thanks to Defendants.

11. With this action, Cassava seeks to hold accountable Defendants who decided that making a quick buck was more important than treating people with Alzheimer's. Defendants are a new breed of profiteers. Instead of selling illegal goods on the black market, they sell lies to artificially drive down a stock price and enrich themselves. Cassava will not be the last victim of these Defendants unless they are held to account for their actions. Disinformation by people with PhDs is still disinformation; and, accusing a company of engaging in fraudulent and illegal activity is defamation *per se*, even if the company is pursuing a new drug treatment for a complex disease.

## II. PARTIES

12. Plaintiff Cassava is a clinical-stage biotechnology company focused on neuroscience. The company's principal place of business is Austin, Texas. It is incorporated in Delaware. Cassava is responsible for the development of simufilam, an oral drug that restores the normal shape and function of a protein in the brain called filamin A (FLNA). Cassava is currently conducting Phase 3 clinical studies to test the efficacy and safety of simufilam in treating Alzheimer's disease.

13. Cassava is a small publicly traded company. Cassava went public in July 2000 (under its predecessor name). Its common stock is listed on the NASDAQ stock exchange, which is headquartered in New York, under the ticker symbol "SAVA." Cassava's stock peaked at well over $100 per share prior to Defendants' disinformation campaign. Cassava's stock price was trading at around $50 per share after they started their disinformation campaign in early November

2021. And, Cassava's stock price is now trading under $25 per share with Defendants still active with their disinformation.

14. Defendant Adrian Heilbut, PhD, is one of the founders of the website "cassavafraud.com." Heilbut is a resident of New York, New York. Upon information and belief, Heilbut has a PhD in bioinformatics and computational biology. His LinkedIn profile identifies him as a lecturer at Columbia University's School of Professional Studies, where he taught a class on "Machine Learning Concepts and Application." He is also listed as the Principal of LogPhase LLC, where his work includes "equity research and due diligence" and "computational biology consulting." Heilbut published factually inaccurate and defamatory information about Cassava on the website "cassavafraud.com" as well as on X, formerly known as Twitter, where he posts under the handle "@Adrian_H."

15. Defendant Enea Milioris, PhD, is one of the founders of the website "cassavafraud.com." Milioris is a resident of London, England. Upon information and belief, Milioris has a PhD in cellular and molecular immunology. A 2023 news report identified Milioris as "an independent portfolio manager who runs a life-sciences investment firm;" his LinkedIn profile identifies him as a "Trader" focusing on "Life Sciences / Pharma Insights & Investment Strategies." Milioris published factually inaccurate and defamatory information about Cassava on the website "cassavafraud.com" as well as on X, formerly known as Twitter, where he posts under the handle "@DRnotaDR."

16. Defendant Jesse Brodkin, PhD, is one of the founders of the website "cassavafraud.com." Brodkin is a resident of Basking Ridge, Somerset County, New Jersey. Upon information and belief, Brodkin has a PhD in pharmacology. He is the founder of Behavioral Instruments, a preclinical-research equipment company. Brodkin published factually inaccurate

and defamatory information about Cassava on the website "cassavafraud.com" as well as on X, formerly known as Twitter, where he posts under the handle "@jesse_brodkin."

17. Defendant Patrick Markey, PhD, is one of the founders of the website "cassavafraud.com." Markey is a resident of Germany, where he works as a clinical psychologist at an outpatient mental health facility. Upon information and belief, Markey has a PhD in psychology. Markey published factually inaccurate and defamatory information about Cassava on the website "cassavafraud.com" as well as on X, formerly known as Twitter, where he posts under the handle "@PatricioMarceso."

18. On or before November 2, 2021, Heilbut, Milioris, Brodkin, and Markey reached an agreement to publish defamatory information about Cassava in an effort to artificially deflate the Company's stock price. Heilbut, Milioris, Brodkin, and Markey agreed they would take short positions in Cassava stock so that they would financially gain when the Company's stock price fell. As part of their scheme, Heilbut, Milioris, Brodkin, and Markey (a) hired a vendor to host a new website called "cassavafraud.com," (b) created content for the website "cassavafraud.com," (c) hired a vendor to host a new website called "simuflimflam.com," (d) created content for the website "simuflimflam.com," (e) coordinated the publication of factually inaccurate and defamatory social media posts about Cassava, and (f) coordinated the distribution of factually inaccurate and defamatory information to New York-based institutions, including the City University of New York ("CUNY").

## III. JURISDICTION AND VENUE

19. This Court has subject matter jurisdiction over the Defendants pursuant to 28 U.S.C. § 1332 because the amount in controversy exceeds $75,000 and all Defendants are of different citizenship than the Plaintiff. Plaintiff is a citizen of Texas and Delaware. Heilbut is a

citizen of New York, Milioris is a citizen of England, Brodkin is a citizen of New Jersey, and Markey is a citizen of Germany.

20. The Court has personal jurisdiction over Heilbut pursuant to CPLR § 301. Heilbut is a resident of New York, New York. Heilbut engaged in the misconduct at issue in this litigation, including preparation and publication of the defamatory statements, from New York, and disseminated the defamatory statements to New York residents, including CUNY.

21. The Court has personal jurisdiction over Milioris, Brodkin, and Markey pursuant to CPLR § 302 for four reasons. One, Milioris, Brodkin, and Markey engaged in business transactions in New York by taking short positions in Cassava's stock, which is traded on the NASDAQ stock exchange in New York. They then published false and defamatory statements about Cassava on a website available in New York, as well as through Heilbut—a citizen of New York—who engaged in both the publication of defamatory statements on the website and directly in New York. These multiple interconnected actions represent an intentional, well-defined nexus between transactions of business in New York by Milioris, Brodkin, and Markey, and their defamatory conduct. Two, Milioris, Brodkin, and Markey knowingly and willfully joined a conspiracy with Heilbut to defame Cassava, publish defamatory statements about Cassava, and make money based on their conspiracy by profiting from short positions in Cassava stock. As part of the conspiracy, and in furtherance of the conspiracy, Heilbut published defamatory statements about Cassava from New York and to New York residents, including CUNY. Three, Milioris, Brodkin, and Markey participated in drafting and publishing of factually inaccurate and defamatory statements about Dr. Hoau-Yan Wang, a professor at a New York-based university (CUNY) who discovered and published papers explaining the mechanism behind simufilam along with Dr. Lindsay Burns, Cassava's Senior VP of Neuroscience, as part of the campaign to

characterize Cassava as a fraud. Four, upon information and belief, Milioris, Brodkin, and Markey transmitted communications to Heilbut in New York and received communications from Heilbut from New York as part of their coordination and execution of the conspiracy.

22. By way of example, as part of the Defendants' conspiracy and scheme to defame Cassava, in October 2022, Heilbut attended a CUNY public hearing in New York City and made a statement to the entire audience that repeated many of the factually inaccurate and defamatory statements made by the Defendants in earlier publications. (Exhibit 1; Exhibit 2 at 22–24.) Heilbut's statements at this hearing are among the false and defamatory statements at issue, including the following:

a. Dr. Hoau-Yan Wang of City College and the School of Medicine perpetrated a massive biomedical research fraud. CUNY has not taken action to stop the misconduct and cover-ups, and is still not doing its investigation under timelines dictated by policy.

b. Wang fabricated data for 20 years. His fantasies were the basis for a purported Alzheimer's drug now in clinical trials. Wang was also responsible for Phase 2 biomarker data, and most of that was also made up.

c. These fabrications may have led to False Claims to FDA and NIH, and potential securities fraud. Concerns were documented in an August 2021 petition to FDA and on PubPeer and given to CUNY.

d. Based on entirely fabricated research, a fake drug is being dosed to humans and peddled as a cure for Alzheimer's, in service of a likely securities fraud. IT IS ALL MADE UP. The ongoing charade makes a mockery of ethics, the FDA, Federal Law, and the entire biomedical research system.

(Ex. 2 at 22–24). Milioris, Brodkin, and Markey have never distanced themselves from Heilbut or ended their participation in their conspiracy with Heilbut. To the contrary, his actions continue to receive their endorsement and support.

23. Moreover, the Court has personal jurisdiction over each of the Defendants because they transacted business through and with a New York corporation that was an integral part of their misconduct. Cassava stock trades on the NASDAQ stock exchange. NASDAQ is owned and

operated by Nasdaq, Inc., a financial services corporation headquartered in New York, New York. Each of the Defendants acquired "short" positions in Cassava stock, meaning they agreed to sell Cassava stock at an existing price and buy the stock (to cover the sell) at a later date. The Defendants relied upon and utilized NASDAQ to execute their scheme to profit from defaming Cassava. Defendants could not have executed their scheme without utilizing the NASDAQ stock exchange, which is owned and operated by a New York-based company.

24. The Court also has personal jurisdiction over each of the Defendants because they disseminated their factually inaccurate and defamatory statements to New York and New York residents. Defendants used various open-access websites to publish their factually inaccurate and defamatory statements, making the statements available to New York residents. Defendants did not place any restrictions on who could review or read their statements. Defendants intended for readers, including New York residents, to sell Cassava stock so that the price of the stock would decline. Each of those sales, which were a necessary component of the scheme, were executed though the NASDAQ stock exchange, which is owned and operated by a New York corporation.

25. Requiring Defendants to litigate these claims in New York does not offend traditional notions of fair play and substantial justice and is permitted by the Due Process Clause of the United States Constitution. One, Cassava's claims arise from defamatory statements made by a New York resident and individuals who conspired with a New York resident. Two, transactions that used a New York-based stock exchange was an integral and necessary part of the Defendants' scheme to profit from artificially deflating the value of Cassava's stock and, thereby, profiting from their short positions. Three, Defendants drafted and published factually inaccurate and defamatory statements about Dr. Hoau-Yan Wang, a professor at a New York-based university

(CUNY), as part of the campaign to characterize Cassava as a company engaged in fraudulent and illegal activity.

26. Venue is proper in this District pursuant to 28 U.S.C. § 1391(b) because a substantial part of the events giving rise to the claims in this Complaint occurred in this District and each of the Defendants are subject to the Court's personal jurisdiction in this District.

## IV. BACKGROUND ON CASSAVA AND SIMUFILAM[2]

27. Cassava is a small clinical-stage biotechnology company based in Austin, Texas. Its mission is to detect and treat neurodegenerative diseases, such as Alzheimer's disease.

28. Cassava currently has two biopharmaceutical assets under development. Its lead therapeutic product candidate, called simufilam, is a potential treatment for Alzheimer's disease. Its lead investigational diagnostic product candidate, called SavaDx, is a way to detect the presence of Alzheimer's disease from a small sample of blood.

29. Simufilam is a proprietary small molecule (oral) drug. It targets an altered form of a protein called filamin A (FLNA) in the Alzheimer's brain. Published studies in science journals have demonstrated that the altered form of FLNA causes neuronal dysfunction, neuronal degeneration and neuroinflammation. Simufilam seeks to simultaneously suppress both neurodegeneration and neuroinflammation.

30. Testing to date demonstrates that simufilam can improve brain health by reverting altered FLNA back to its native, healthy conformation, thus countering the downstream toxic effects of altered FLNA. Cassava has generated and published experimental and clinical evidence

[2] The United States Adopted Names (USAN) Council assigned Cassava's lead drug candidate, PTI-125, the chemical drug name "sumifilam" in August 2020. In November 2020, the World Health Organization advised USAN to modify the chemical drug name to "simufilam" to avoid a potential trademark conflict with a drug marketed in the Far East. All references in this Complaint will be to "simufilam."

of improved brain health with simufilam. Since simufilam has a unique mechanism of action, its potential therapeutic effects may be additive or synergistic with FDA-approved therapeutic candidates to treat neurodegeneration.

### A. Overview of the Science Behind Simufilam

31. Proteins are essential for cell function because they participate in virtually every biological process. If protein function is impaired, the health consequences can be devastating. With aging, genetic mutations and other factors conspire against healthy cells, resulting in altered proteins. Sometimes a cell can rid itself of altered proteins. However, when disease changes the shape and function of critical proteins, multiple downstream processes are impaired. There are many clinical conditions in which proteins become structurally altered and impair the normal function of cells, tissues, and organs, leading to disease. Conversely, restoring altered proteins back to health—called proteostasis—is a well-accepted therapeutic strategy in clinical medicine.

32. For over 100 years, scientists have ascribed various neurodegenerative diseases to proteins that misfold and are rendered pathological. In Alzheimer's disease, certain proteins, such as amyloid and tau, lose their normal shape and function. Such misfolded proteins can break down or aggregate in clumps and form plaque or tangles in the brain. Destruction of neuronal synapses, accelerated nerve cell death, and dysfunction of the brain support cells are all widely believed to be direct consequences of misfolded proteins.

33. FLNA is a scaffolding protein found in high levels in the brain. A healthy scaffolding protein brings multiple proteins together, coordinating their interaction. However, an altered form of FLNA protein is found in the Alzheimer's brain. Cassava's experimental evidence shows that altered FLNA protein contributes to Alzheimer's disease by disrupting the normal function of neurons, leading to neurodegeneration and brain inflammation. Simufilam aims to

counter the altered and toxic form of FLNA in the brain, thus restoring the normal function of this critical protein.

34. Simufilam binds to altered FLNA with very high (femtomolar) affinity. This drug effect restores the normal shape of FLNA and the normal function of key brain receptors, including: the alpha-7 nicotinic acetylcholine receptor; the N-methyl-D-aspartate (NMDA) receptor; and the insulin receptor. These receptors have pivotal roles in brain cell survival, cognition, and memory. In addition, recent data suggest a beneficial impact of the candidate drug on the mechanistic Target of Rapamycin (mTOR) signaling.

35. Cassava has generated and published experimental evidence of brain health by restoring altered FLNA with simufilam. In animal models, treatment with simufilam resulted in dramatic improvements in brain health, such as reduced amyloid and tau deposits, improved receptor signaling and improved learning and memory. In addition, simufilam has another beneficial treatment effect of significantly reducing inflammatory cytokines in the brain. In animal models of disease, treatment with simufilam greatly reduced levels of cytokine interleukin 6 (IL-6) and suppressed *tumor necrosis factor (TNF)* alpha and IL-1beta levels by 86% and 80%, respectively, illustrating a powerful anti-neuroinflammatory effect.

36. By restoring function to multiple receptors and exerting powerful anti-inflammatory effects, testing to date shows that simufilam has potential to slow the progression of neurodegeneration in patients. Simufilam is designed to slow or, potentially, even reverse the deterioration of brain cells.

37. Cassava's science is published in multiple peer-reviewed journals. In addition, Cassava's research has been supported by the National Institutes of Health (NIH) under multiple research grant awards. Each grant was awarded following an in-depth, peer-reviewed evaluation

of Cassava's approach for scientific and technical merit by a panel of outside experts in the field. Strong, long-term support from NIH has allowed Cassava to advance its two product candidates for neurodegeneration, simufilam and SavaDx, into clinical development.

**B. Development and Approval Process for Drugs in the United States**

38. In the United States, the FDA is authorized to regulate drugs under the Federal Food, Drug, and Cosmetic Act (FDCA). Drugs and diagnostics are also subject to other federal, state, and local statutes and regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process, or post-market may subject an applicant to administrative or judicial sanctions.

39. Product candidates must be approved by the FDA before they may be commercialized in the United States. The drug approval process generally involves the following:

a. Completion of extensive preclinical studies in accordance with applicable regulations, including studies conducted in accordance with good laboratory practice.

b. Submission to the FDA of an Investigative New Drug application (IND), which must become effective before human clinical studies may begin.

c. Approval by an independent institutional review board (IRB) or ethics committee before each study may be initiated.

d. Performance of adequate and well-controlled human clinical studies in accordance with applicable IND regulations, code of good clinical practice (cGCP) requirements and other clinical trial-related regulations to establish

the safety and efficacy of the investigational product for each proposed indication.

e. Submission to the FDA of a New Drug Application (NDA).

f. A determination by the FDA within 60 days of its receipt of an NDA to accept the filing for review.

g. Satisfactory completion of a FDA pre-approval inspection of the manufacturing facility or facilities where the drug will be produced to assess compliance with current good manufacturing practices (cGMP) requirements to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity.

h. Potential FDA audit of the preclinical study and/or clinical study sites that generated the data in support of the NDA.

i. FDA review and approval of the NDA, including consideration of the views of any FDA advisory committee, prior to any commercial marketing or sale of the drug in the United States.

j. Compliance with any post-approval requirements, including the potential requirement to conduct post-approval studies.

40. The data required to support an NDA are generated in two distinct developmental stages: preclinical and clinical. The preclinical and clinical testing and approval process requires substantial time, effort, scientific expertise, and financial resources.

**1. Preclinical Studies and IND**

41. The preclinical developmental stage generally involves laboratory evaluations of drug chemistry, formulation, and stability, as well as studies to evaluate toxicity in animals, which support subsequent clinical testing. As sponsor, Cassava must submit the results of the preclinical studies, together with manufacturing information, analytical data, any available preclinical data or literature, and a proposed clinical protocol, to the FDA as part of the IND. An IND is a request for

authorization from the FDA to administer an investigational product to humans and must become effective before human clinical studies may begin.

42. Preclinical studies include laboratory evaluation of product chemistry and formulation, as well as in vitro and animal studies to assess the potential for adverse events and in some cases to establish a rationale for therapeutic use. The conduct of preclinical studies is subject to federal regulations and requirements, including cGCP regulations for safety/toxicology studies. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical studies, among other things, to FDA as part of an IND. Some long-term preclinical testing, such as long-term toxicity tests, animal tests of reproductive adverse events, and carcinogenicity, may continue after the IND is submitted.

**2. Clinical Studies**

43. The clinical stage of development involves the administration of the investigational drug to healthy volunteers or patients under the supervision of qualified investigators, generally physicians not employed by or under the study sponsor's control, in accordance with cGCP requirements, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial.

44. Clinical studies are conducted under written protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety and assess efficacy. Each protocol, and any subsequent amendments to the protocol, must be submitted to FDA as part of the IND.

45. Furthermore, each clinical study must be reviewed and approved by an independent IRB for each institution at which the clinical study will be conducted to ensure that the risks to individuals participating in the clinical studies are minimized and are reasonable in relation to

anticipated benefits. The IRB also approves the informed consent form that must be provided to each clinical study subject or his or her legal representative and must monitor the clinical study until completed. There also are requirements governing the reporting of ongoing clinical studies and completed clinical study results to public registries.

46. Clinical studies in the United States generally are conducted in three sequential phases, known as Phase 1, Phase 2, and Phase 3.

47. Phase 1 clinical studies generally involve a small number of healthy volunteers or disease-affected patients who are initially exposed to a single dose and then multiple doses of the product candidate. The primary purpose of these clinical studies is to assess the metabolism, pharmacologic action, tolerability and safety of a drug candidate.

48. Phase 2 clinical studies involve studies in disease-affected patients to determine the proper dose required to produce the desired benefits. At the same time, safety and further pharmacokinetic and pharmacodynamic information is collected, possible adverse effects and safety risks are identified, and a preliminary evaluation of efficacy may be observed.

49. Phase 3 clinical studies generally involve many patients at multiple sites and are designed to provide the data necessary to demonstrate the effectiveness of the product for its intended use, its safety in use, and to establish the overall benefit/risk relationship of the product and provide an adequate basis for product approval. These studies may include comparisons with placebo and/or other comparator treatments. The duration of treatment is often extended to mimic the actual use of a product during marketing.

50. Post-approval studies, sometimes referred to as Phase 4 clinical studies, may be conducted after initial marketing approval. These studies are used to gain additional experience

from the treatment of patients in the intended therapeutic indication. In certain instances, FDA may mandate the performance of Phase 4 clinical studies as a condition of approval of an NDA.

**3. NDA Review Process**

51. Following completion of the clinical studies, data is analyzed to assess whether the investigational product is safe and effective for the proposed indicated use or uses. The results of preclinical studies and clinical studies are then submitted to FDA as part of an NDA, along with proposed labeling, chemistry, and manufacturing information to ensure product quality and other relevant data.

52. The NDA is a request for approval to market a drug for one or more specified indications and must contain proof of safety and efficacy for a drug's purity and potency. The application may include both negative and ambiguous results of preclinical studies and clinical studies, as well as positive findings. Data may come from company-sponsored clinical studies intended to test the safety and efficacy of a product's use or from several alternative sources, including studies initiated by investigators.

53. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and efficacy of the investigational product to the satisfaction of FDA. FDA approval of an NDA must be obtained before a drug may be marketed in the United States.

**C. Cassava's Development and Testing of Simufilam**

54. At great expense, Cassava continues to develop simufilam as a potential drug treatment for people with Alzheimer's disease. At all times, Cassava has been in material compliance with all statutes, rules, and regulations of the FDA. At each stage of development, Cassava's work has been carried out with due regard for the drug development process outlined by the FDA. In particular, Cassava's Phase 3 clinical program—which is an on-going, multi-

national clinical testing program with approximately 1,900 Alzheimer's patients that will cost over $200,000,000—was carefully crafted with assistance from the FDA to ensure that simufilam demonstrates whether or not it offers a treatment benefit.

**1. IND submission to FDA**

55. Over the past ten years, Cassava successfully conducted basic research, in vitro studies, and preclinical studies in support of an Investigational New Drug (IND) submission to FDA for simufilam, including requisite studies around safety pharmacology, toxicology, genotoxicity, and bioanalytical methods. Cassava filed an IND with FDA for simufilam in 2017. The FDA accepted the IND within thirty days.

**2. Phase 1 Study**

56. Following the FDA's acceptance of the IND, Cassava investigated the safety, dosing, and pharmacokinetic profile of simufilam in healthy human volunteers. The design of its first-in-human Phase 1 study was based on regulatory feedback, clinical and scientific rationale, and observations from previously conducted preclinical and in vitro studies.

57. In the Phase 1 study, simufilam was evaluated in 24 healthy human volunteers in a single site in the United States for safety, tolerability, and pharmacokinetics. Study subjects were administered a single oral dose of 50, 100, or 200 mg of simufilam. The drug was well-tolerated in all subjects. Simufilam showed no treatment-related adverse effects and no dose-limiting safety findings. Pharmacokinetic measurements demonstrated that simufilam was rapidly absorbed. Dose-proportionality was observed over the full dose range of 50 to 200 mg.

58. Given the absence of any observable dose-limiting effects in healthy adults in a Phase 1 study, a strong scientific rationale, and multiple peer-reviewed publications and research

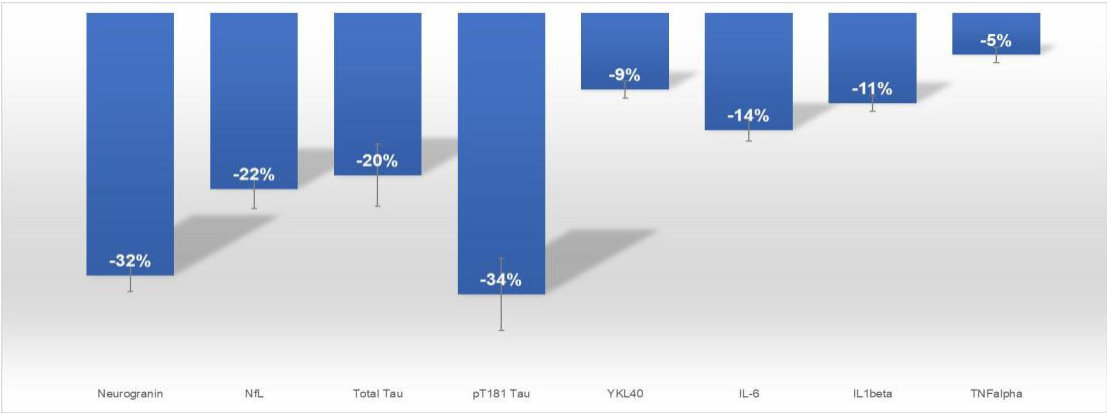
grant awards, Cassava concluded that the program demonstrated favorable proof-of-principle for the development of simufilam in Alzheimer's disease.

### 3. Phase 2a Clinical Study

59. In 2019, Cassava completed a first-in-patient, clinical proof-of-concept study of simufilam in the United States. Cassava's Phase 2a clinical study was an open-label, multi-center, safety and pharmacokinetic study of simufilam. Thirteen (13) patients with mild-to-moderate Alzheimer's disease, ages 50–85, received 100 mg oral simufilam twice daily for 28 days. A diagnosis of Alzheimer's disease was confirmed with Mini-Mental State Examination (MMSE) $\geq$ 16 and $\leq$ 24 and a cerebrospinal fluid (CSF) T-tau/A$\beta_{42}$ ratio $\geq$ 0.30. Safety was assessed by ECGs, clinical labs, adverse event monitoring, and physical examinations. CSF was drawn from patients before dosing started and again after 28 continuous days of dosing with simufilam. CSF samples were then analyzed for biomarkers of Alzheimer's pathology (T-tau, P-tau181, A$\beta_{42}$); neurodegeneration (NfL, neurogranin); and neuroinflammation (YKL-40, IL-6, IL-1$\beta$ and TNF$\alpha$). A consulting biostatistician conducted an independent analysis of the data set.

60. A key objective of the Phase 2a study was to measure levels of CSF biomarkers in the brain. Eight CSF biomarkers of disease in Alzheimer's patients were significantly reduced with simufilam treatment. Key results of this study include:

**Simufilam treatment reduces levels of CSF biomarkers in patients with Alzheimer's in a Phase 2a study**



61. Consistent with over 10 years of basic research and preclinical data, the Phase 2a study showed clinical evidence of simufilam's mechanism of action and drug-target engagement, including: (a) improvements in biomarkers of Alzheimer's disease in CSF, plasma, and lymphocytes; (b) consistency across biomarker improvements in CSF, plasma, and lymphocytes; (c) significant reductions ($p<0.01$) in both nitrated and phosphorylated forms of tau protein; (d) evidence that each individual patient showed biomarker responses to simufilam; (e) evidence that simufilam reversed the shape of altered filamin A in lymphocytes; (f) evidence that simufilam reduced levels of amyloid bound to alpha 7 nicotinic receptors in lymphocytes; and (g) early clinical validation of the drug target—altered filamin A—as a facilitator protein between amyloid beta and both neuroinflammation and tau pathology.

**4. Phase 2b Clinical Study**

62. In March 2020, Cassava announced the completion of a double-blind, randomized, placebo-controlled, multi-center clinical study of simufilam. Sixty-four patients with mild-to-moderate Alzheimer's disease, ages 50–85, were randomized (1:1:1) to 100 mg or 50 mg oral simufilam or matching placebo. Treatment was administered twice daily for 28 days. Nine U.S. study sites enrolled patients. A clinical diagnosis was confirmed with the MMSE $\geq$16 and $\leq$26 and a CSF T-tau/A$\beta_{42}$ ratio $\geq$0.28. Safety was assessed by ECGs, clinical labs, adverse event monitoring, and physical examinations. This study was substantially funded by a research grant award from NIH.

63. The Phase 2b clinical study was designed to evaluate safety, tolerability, and drug effects of simufilam on biomarkers of Alzheimer's disease. The primary endpoint was improvement in biomarkers of Alzheimer's disease from baseline to Day 28. CSF was drawn from patients before dosing started and again after 28 continuous days of dosing with simufilam. CSF

samples were then analyzed for biomarkers of Alzheimer's pathology (T-tau, P-tau181, $A\beta_{42}$); neurodegeneration (NfL, neurogranin); and neuroinflammation (YKL-40, IL-6, sTREM2, HMGB1) and BBB integrity (IgG, albumin). An independent statistics vendor conducted an independent analysis of the data set.

64. In May 2020, Cassava announced that an outside lab, with whom it had no prior work experience, conducted a bioanalysis of CSF samples from the Phase 2b study. The data set from this initial bioanalysis showed unnaturally high variability and other problems, including unexpected wide swings in placebo patients and unacceptably high variance between duplicate assessments of the same samples. Most informative was that different biomarkers frequently moved in opposite directions, even dramatically, in the same patients—even among patients receiving placebo. In other words, a patient's disease was evidently improving and worsening at the same time. Overall, Cassava concluded that the data from this initial bioanalysis was anomalous and highly improbable. With its validity in question, Cassava concluded that the initial bioanalysis served no useful purpose. Backup CSF samples were sent to CUNY for bioanalysis. All bioanalyses were conducted under blinded conditions to eliminate any possibility of bias.

65. In addition to sending the backup CSF samples to CUNY, Cassava also sought to examine patients' plasma for phosphorylated tau (P-tau181), which is one of the core markers of Alzheimer's pathology. Cassava sent the patients' plasma samples to a highly regarded, independent commercial laboratory, Quanterix Corp., to conduct that analysis by performing sample testing on blinded samples. Quanterix's sample testing was conducted entirely by its

employees, who were responsible for measuring levels of P-tau181 in plasma samples collected from study subjects. Quanterix's plasma results aligned with the CSF results reported by CUNY.

66. In September 2020, Cassava reported final positive Phase 2b clinical study results. The drug was safe and well-tolerated in this study. Simufilam significantly ($P<0.05$) improved an entire panel of biomarkers of disease in patients with Alzheimer's disease compared to a placebo group. In addition, in two validated tests of cognition, Alzheimer's patients treated with simufilam showed directional improvements in spatial working memory and in a sensitivity analysis of episodic memory, versus patients on placebo.

67. Core markers of Alzheimer's pathology are total tau (T-tau), phosphorylated tau (P-tau181), and amyloid beta42 ($A\beta_{42}$). In Alzheimer's, tau and P-tau levels are elevated and $A\beta_{42}$ is low. The Phase 2b clinical study showed:

| |
|---|
| T-tau decreased 15% ($p<0.01$) for patients in the 50 mg drug group |
| T-tau decreased 18% ($p<0.01$) for patients in the 100 mg drug group |
| P-tau decreased 8% ($p<0.01$) for patients in the 50 mg drug group |
| P-tau decreased 11% ($p<0.01$) for patients in the 100 mg drug group |
| $A\beta_{42}$ increased 17% ($p<0.01$) for patients in the 50 mg drug group. |
| $A\beta_{42}$ increased 14% ($p<0.01$) for patients in the 100 mg drug group |

68. Elevated CSF levels of two proteins, Neurogranin (Ng) and Neurofilament Light Chain (NfL), indicate neurodegeneration. The Phase 2b clinical study showed:

| |
|---|
| Ng decreased 36% ($p<0.01$) for patients in the 50 mg drug group |
| Ng decreased 43% ($p<0.01$) for patients in the 100 mg drug group |
| NfL decreased 28% ($p<0.05$) for patients in the 50 mg drug group |
| NfL decreased 34% ($p<0.01$) for patients in the 100 mg drug group |

69. Proinflammatory IL-6 (Interleukin 6) is produced in response to tissue stress and injury. The Phase 2b study showed:

| |
|---|
| IL-6 decreased 10% ($p<0.01$) for patients in the 50 mg drug group |
| IL-6 decreased 11% ($p<0.01$) for patients in the 100 mg drug group |

70. Elevated levels of neuroinflammatory marker YKL-40 indicate neuroinflammation. The Phase 2b study showed:

| |
|---|
| YKL-40 decreased 10% ($p<0.01$) for patients in the 50 mg drug group |
| YKL-40 decreased 12% ($p<0.01$) for patients in the 100 mg drug group |

71. sTREM2 is a neuroinflammation biomarker that has commanded substantial recent attention from researchers for its role in Alzheimer's disease and frontotemporal dementia. The Phase 2(b) study showed:

| |
|---|
| sTREM2 decreased 43% ($p<0.01$) for patients in the 50 mg drug group |
| sTREM2 decreased 46% ($P<0.01$) for patients in the 100 mg drug group |

72. The Phase 2b study also showed that simufilam significantly reduced levels of HMGB1 in CSF and significantly improved the integrity of the Blood-brain Barrier (BBB). The Phase 2b study showed:

| |
|---|
| HMGB1 decreased 33% ($p<0.01$) in patients treated with 50 mg simufilam |
| HMGB1 decreased 32% ($p<0.01$) in patients treated with 100 mg simufilam |
| CSF IgG decreased 30% ($p<0.05$) in patients treated with 50 mg simufilam |
| CSF IgG decreased 30% ($p<0.05$) in patients treated with 100 mg simufilam |
| CSF albumin decreased 15% ($p<0.05$) in patients treated with 50 mg simufilam |
| CSF albumin decreased 28% ($p<0.05$) in patients treated with 100 mg simufilam |

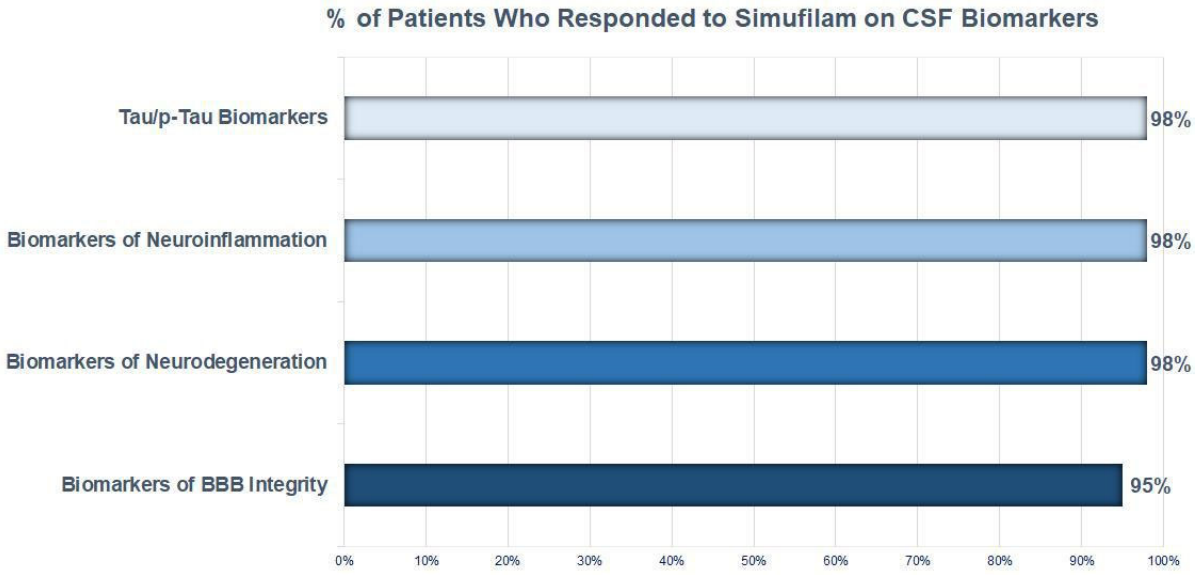
73. BBB permeability can be clinically evaluated by comparing levels of albumin in CSF and plasma. The albumin ratio is a test for BBB permeability because albumin protein is not synthesized in CSF. Hence, albumin in CSF necessarily comes from plasma through the BBB. The albumin ratio is frequently elevated in patients with dementia and various other disorders. In the Phase 2b study, the albumin ratio was unchanged for Alzheimer's patients on placebo. The

albumin ratio improved by approximately 5 and 7 points for patients treated with simufilam, 50 mg and 100 mg, respectively, over 28 days.

**Changes in the Albumin Ratio by Treatment Group**

| Treatment | Day 0 | Day 28 | Change-Day 0 to 28 |
|---|---|---|---|
| Placebo | 24 | 24 | No change |
| 50 mg simufilam | 25 | 20 | - 20% |
| 100 mg simufilam | 25 | 18 | - 28% |

74. Overall, the study achieved a 98% response rate, defined as the proportion of study participants taking simufilam who showed improvements in biomarkers.

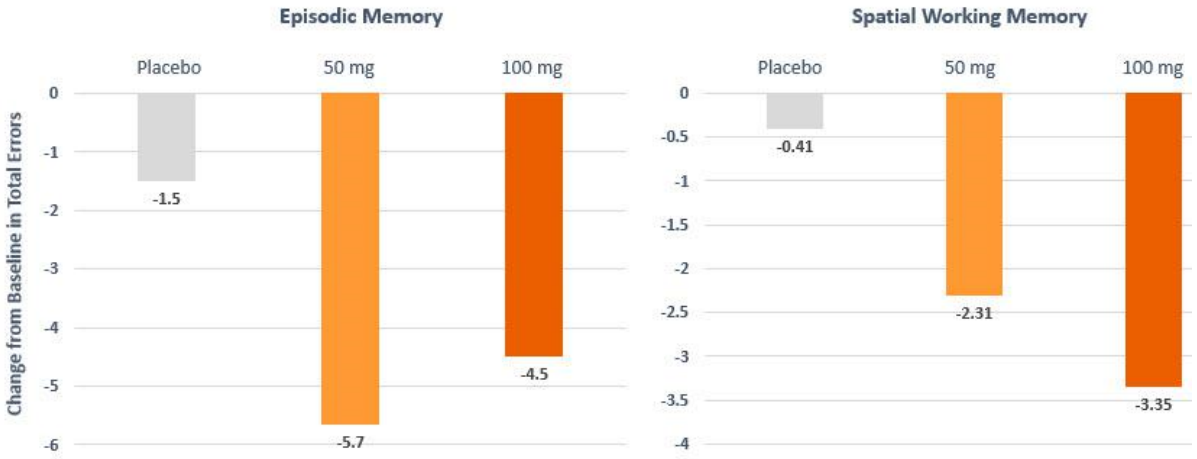



75. A further objective of the Phase 2b study was to measure drug effects on cognition. Patients were tested at baseline and again on Day 28. Changes in episodic memory and spatial working memory were assessed on CANTAB, a validated, computer-based battery of tests.

CANTAB is designed to measure cognitive skills regardless of the subject's language skills, speed, gender, or education.

76. Only directional trends were observed in memory improvements, due to limitations around study size (N=64). The final data analysis shown below excludes three patients who, the Company subsequently learned, showed no detectable level of simufilam in plasma and two patients who missed 25% or more of their doses by pill counts. In addition, outlier subjects with the most and fewest errors (by baseline score cutoffs) were removed in the sensitivity analysis of episodic memory.

**Episodic Memory and Spatial Working Memory Improvements**




77. Alzheimer's patients in both drug groups showed directional improvements on tests of episodic memory and spatial memory after 28 days of treatment, versus patients on placebo. Episodic memory improved by -5.7 (lower score is better) for Alzheimer's patients in the 50 mg drug group, versus -1.5 for patients on placebo. Episodic memory improved by -4.5 (lower score is better) for Alzheimer's patients in the 100 mg drug group, versus -1.5 for patients on placebo.

78. Spatial memory improved by -2.31 (lower score is better) for Alzheimer's patients in the 50 mg drug group, versus -0.4 for patients on placebo. Spatial memory improved by -3.35

(lower score is better) for Alzheimer's patients in the 100 mg drug group, versus -0.4 for patients on placebo. Improvements in cognition correlated most strongly (statistical R=0.5) with decreases in CSF P-tau181, a biomarker that, when elevated, leads to tangles in the brain. Simufilam decreased brain levels of Ptau-181 by 8 and 11%, versus placebo.

**5. Phase 3 Clinical Studies**

79. Phase 3 clinical testing means conducting highly structured, large scale human clinical studies to evaluate a drug candidate's safety, efficacy, and overall benefit-risk relationship for the purpose of obtaining FDA approval in a specific patient population, consistent with 21 C.F.R. Part 312.21(c). Phase 3 is generally one of the last high hurdles to overcome before a drug is made available to patients as a new treatment option. Cassava's Phase 3 program consists of two large, double-blind, randomized, placebo-controlled studies of simufilam in patients with mild-to-moderate Alzheimer's disease dementia.

***a. FDA Concurrence for Phase 3 Clinical Studies***

80. In January 2021, Cassava held an End-of-Phase 2 (EOP2) meeting for simufilam with the FDA. The purpose of this EOP2 meeting was to gain general agreement around key elements of a pivotal Phase 3 program to treat Alzheimer's disease dementia. FDA attendees included Robert Temple, MD, Deputy Center Director for Clinical Science and Senior Advisor in the Office of New Drugs; Billy Dunn, MD, Director, Office of Neuroscience; Eric Bastings, MD, Director, Division of Neurology; and others.

81. In February 2021, Cassava announced the successful completion of its EOP2 meeting. Official meeting minutes confirm that Cassava and FDA aligned on key elements of a Phase 3 clinical program for simufilam. FDA agreed that the completed Phase 2 program, together with an ongoing and well-defined Phase 3 clinical program, were sufficient to show evidence of clinical efficacy for simufilam in Alzheimer's disease. There was also agreement that the separate

clinical scales to assess cognition (ADAS-cog) and function (ADCS-ADL) were appropriate co-primary endpoints of efficacy. A clinical scale that combines cognition and function, such as iADRS, was a secondary efficacy endpoint.

82. In August 2021, Cassava announced it had reached agreement with FDA under a Special Protocol Assessment (SPA) for both Phase 3 studies. These SPA agreements document that FDA had reviewed and agreed upon the key design features of the Phase 3 study protocols of simufilam for the treatment of patients with Alzheimer's disease.

83. The SPA agreement indicated concurrence by the FDA with the adequacy and acceptability of specific critical elements of overall protocol design (*e.g.*, entry criteria, dose selection, endpoints, etc.). These elements are critical to ensure that Cassava's Phase 3 studies of simufilam in Alzheimer's disease can be considered adequate and well-controlled studies in support of a future regulatory submission and marketing application.

***b. Initiation of Phase 3 Clinical Studies***

84. In October 2021, Cassava announced initiation of its first Phase 3 study. The first Phase 3 study, called RETHINK-ALZ, is designed to evaluate the safety and efficacy of oral simufilam 100 mg over 52 weeks.

85. Approximately 800 patients are randomized into this study (1:1) to take simufilam 100 mg tablets or matching placebo twice daily. Patients will be treated for 52 weeks. Efficacy endpoints are ADAS-Cog12, a cognitive scale, ADCS-ADL, a functional scale, and iADRS (which is a combination of scores from ADAS-Cog and ADCS-ADL). All three clinical measurements are standard psychometric assessment tools in trials of Alzheimer's disease. Other endpoints

include plasma biomarkers of disease and NPI, a clinical tool that assesses the presence and severity of dementia-related behavior.

86. Over 340 patients have completed the 52-week RETHINK-ALZ study. Cassava anticipates a top-line data readout for this study by approximately year-end 2024.

87. In November 2021, Cassava announced initiation of its second Phase 3 study. The second Phase 3 Study, called REFOCUS-ALZ, is designed to evaluate the safety and efficacy of oral simufilam 100 mg and 50 mg over 76 weeks.

88. Approximately 1,100 patients are randomized into this study (1:1:1) to take simufilam 100 mg tablets, 50 mg tablets, or matching placebo twice daily. Patients will be treated for 76 weeks. Efficacy endpoints are ADAS-Cog12, a cognitive scale, ADCS-ADL, a functional scale, and iADRS (which is a combination of scores from ADAS-Cog and ADCS-ADL). All three clinical measurements are standard psychometric assessment tools in trials of Alzheimer's disease. Other endpoints include biomarkers of disease, MRI imaging and NPI, a clinical tool that assesses the presence and severity of dementia-related behavior.

89. Over 215 patients have completed the 76-week REFOCUS-ALZ study. Cassava anticipates a top-line data readout for this study by approximately mid-year 2025.

90. Both Phase 3 Studies are being performed with the assistance of highly qualified, independent professionals, including the following:

a. Independent investigators are recruiting patients at 170 clinical sites in the U.S. (including Puerto Rico), Canada, Australia, and South Korea.

b. Each patient's clinical diagnosis of Alzheimer's disease is confirmed by pTau181, a blood-based biomarker test performed by Neurocode

Laboratories, a CAP-accredited, CLIA-certified laboratory with no connections to Cassava.

c. Premier Research, an experienced clinical research organization (CRO), oversees the clinical sites and manages the trials.

d. WCG, a global organization used by every major pharmaceutical company, provides IRB ethical oversight of the trials.

e. An independent Data and Safety Monitoring Board (DSMB) periodically reviews interim patient safety data generated by the trials, including access to unblinded data if the DSMB deems it necessary. The DSMB is responsible for allowing the trials to continue only consistent with patient safety.

f. Signant Health oversees collection of data from the clinical trial sites on an electronic platform and analyzes that data for reliability on an ongoing basis.

g. Magnetic Resonance Imaging (MRI) safety data is analyzed by board-certified neuroradiologists at Clario, an independent research technology company that supports clinical trials in 80 countries.

h. Once the last patient in each trial is dosed and the database is locked, Dr. Suzanne Hendrix, a preeminent outside statistician at Pentara Corporation with specific expertise in Alzheimer's disease, will conduct all statistical analyses with her team pursuant to a prespecified Statistical Analysis Plan approved by the FDA.

**D. Open-Label Study**

91. In addition to the FDA-required testing discussed above, in March 2020, Cassava initiated a long-term, open-label study to evaluate simufilam in patients with Alzheimer's disease. In other words, patients in the trial knew they were receiving simufilam and no patient received a placebo. This study, which enrolled over 200 patients at 16 sites, was funded in part by a research grant award from the NIH. The study was intended to monitor the long-term safety and tolerability of simufilam 100 mg twice daily for 12 or more months. Another study objective was to measure changes in cognition and biomarkers. This study used ADAS-Cog to measure changes in cognition

and the Neuropsychiatric Inventory (NPI) to assess dementia-related behavior. Both scales are standard clinical tools in trials of Alzheimer's disease.

92. During the Open-Label Study, patients were administered simufilam or a placebo in three continuous phases: 1) a 12-month, open-label treatment phase; 2) a 6-month, randomized placebo-controlled withdrawal phase; and 3) 6 additional months of open-label treatment. During the open-label phases of the trial, both the health providers and the patients knew the drug treatment was simufilam oral tablets 100 mg twice-daily. During the randomized withdrawal, the patients switched to placebo received a look-alike placebo, and neither the patients nor the clinical site staff knew who was assigned to which.

93. As with all clinical trials, the actual field work was performed by independent, third-party organizations retained by Cassava. Axiom, the independent clinical data management organization retained by Cassava, collected the data from the 16 independent clinical investigators at sites around the country. This data included, for example, the tests that individual sites administered to patients throughout the study to measure cognitive decline. Axiom sent that data to another independent third party, Pentara Corporation, for biostatistical analysis and interpretation.

**1. Interim Analysis Results**

94. In February 2021, Cassava announced top-line results of a preplanned interim analysis of its open-label study with simufilam. This interim analysis summarized clinical data in the first 50 patients who had completed at least six months of drug treatment. Patients' cognition and behavior scores improved following six months of simufilam treatment, with no safety issues.

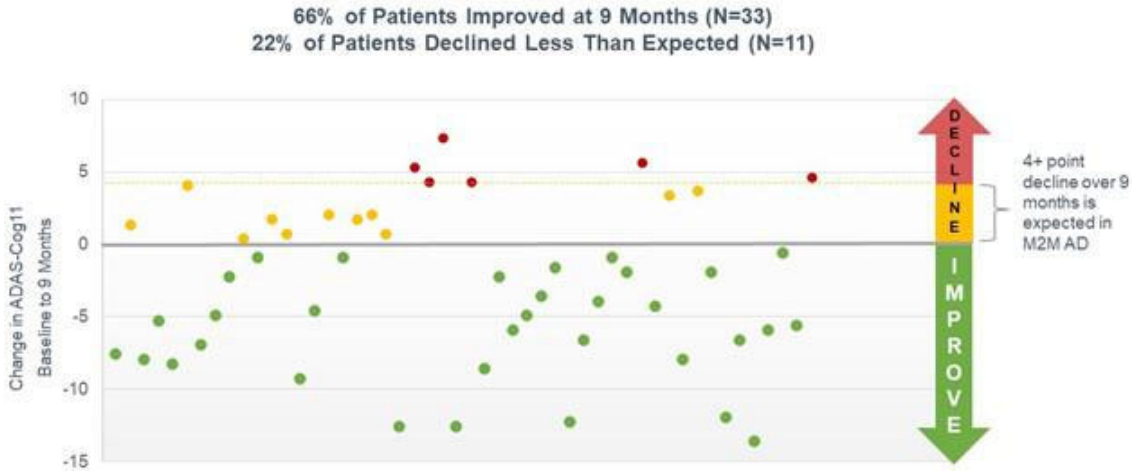
95. Six months of simufilam treatment improved cognition scores by 1.6 points on ADAS-Cog11, a 10% mean improvement from baseline to month 6. In these same patients,

simufilam also improved dementia-related behavior, such as anxiety, delusions and agitation, by 1.3 points on the NPI, a 29% mean improvement from baseline to month 6.

96. In July 2021, Cassava announced top-line results of a second preplanned interim analysis of its open-label study with simufilam. This interim analysis summarized clinical data on the first 50 patients who had completed at least nine months of drug treatment. Patients' cognition and behavior scores improved following nine months of simufilam treatment, with no safety issues.

97. Nine months of simufilam treatment improved cognition scores by 3.0 points on ADAS-Cog11, an 18% mean improvement from baseline to month 9 ($p<0.001$). Simufilam improved ADAS-Cog scores in 66% of patients at nine months. An additional 22% of patients declined less than reported in the science literature at nine months. Cognition outcomes suggest simufilam's treatment effects were broad-based.

**Individual Patient Changes in ADAS-Cog (N=50) at 9 months**

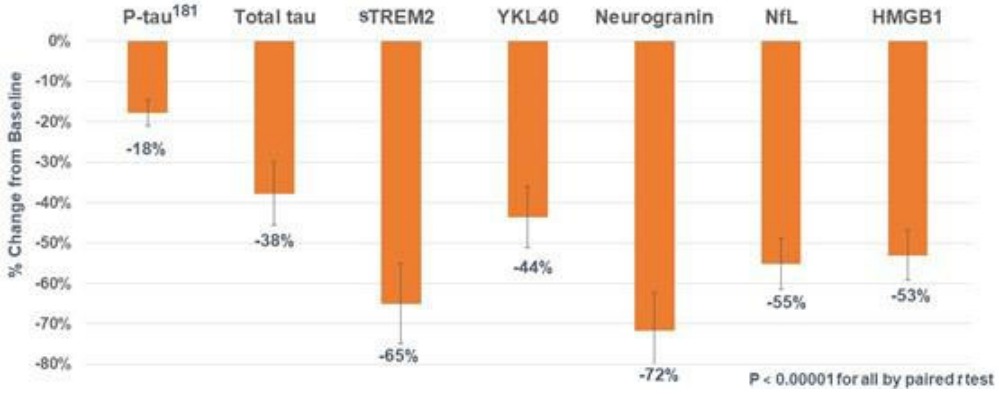



98. In July 2021, Cassava also announced positive biomarker data from its open-label study. Six months of open label treatment with simufilam robustly improved CSF biomarkers in a cohort of 25 patients with mild-to-moderate Alzheimer's disease. Biomarker data were analyzed from cerebrospinal fluid (CSF) collected from 25 study participants in the open-label study who

agreed to undergo a lumbar puncture at baseline and again after six months of treatment. CSF bioanalyses were conducted blind by City University of New York (CUNY).

99. CSF biomarkers of disease pathology, t-tau and p-tau181, decreased 38% and 18%, respectively (both $p<0.00001$). CSF biomarkers of neurodegeneration, neurogranin and Nfl, decreased 72% and 55%, respectively (both $p<0.00001$). CSF biomarkers of neuroinflammation, sTREM2 and YKL-40, decreased 65% and 44% (both $p<0.00001$).

**Significant Decreases in CSF Biomarkers at Month 6**




100. In September 2021, Cassava announced top-line results of a third interim analysis of the open-label study with simufilam. This interim analysis summarized clinical data on the first 50 patients who had completed at least twelve months of drug treatment. Patients' cognition and behavior scores both improved following twelve months of simufilam treatment, with no safety issues. Twelve months of simufilam treatment improved cognition scores by 3.2 points on ADAS-Cog11 from baseline to month 12 ($p<0.001$). Sixty-eight percent (68%) of study subjects improved on ADAS-Cog at 12 months; these study subjects improved an average of 6.8 points (S.D. ± 3.8).

An additional 20% of study subjects declined less than 5 points on ADAS-Cog at twelve months; these study subjects declined an average of 2.5 points (S.D. ± 1.3).

101. Interim analyses summarize clinical data on the first 50 patients who have completed 6, 9, and 12 months of open-label treatment. Baseline values for cognition for each 50-patient cohort will not be the same at months 6, 9, and 12 because some study participants drop out of the open-label study in-between interim analyses and dropouts are replaced, such that each interim analysis collects data from the first 50 patients who complete each specified time point.


102. Alzheimer's is often accompanied by behavior disorders, such as anxiety, agitation, or delusions. Such disorders may come and go over time, but they typically emerge or become more frequent as the disease progresses. Simufilam reduced dementia-related behavior at twelve months on the NPI.

103. At baseline, 34% of study subjects had no neuropsychiatric symptoms. At month 6, 38% of study subjects had no neuropsychiatric symptoms. At month 9, over 50% of study

subjects had no neuropsychiatric symptoms. At month 12, over 50% of study subjects had no neuropsychiatric symptoms.

**2. 12-Month Final Results**

104. In January 2023, Cassava announced final top-line results for the first 12-month open-label phase of the study. The data showed that the average change in cognition (ADAS-Cog scores) was less than would be expected for Alzheimer's patients over the course of 12 months. In particular, the results showed that 47% of patients improved on ADAS-Cog over one year, and this group improved 4.7 points. An additional 23% of patients declined less than five points on ADAS-Cog over one year, and this group declined by 2.5 points. Overall, mild Alzheimer's patients responded better than patients with moderate Alzheimer's disease.

105. Efficacy outcomes were analyzed by an independent, outside biostatistical consulting firm, Pentara, led by Dr. Suzanne Hendrix. Hendrix noted that "[t]he data for simufilam are noteworthy," and that "[t]he improvement in ADAS-Cog over one year in mild patients taking simufilam is well outside the expected range of historic placebo decline rates from numerous other studies."

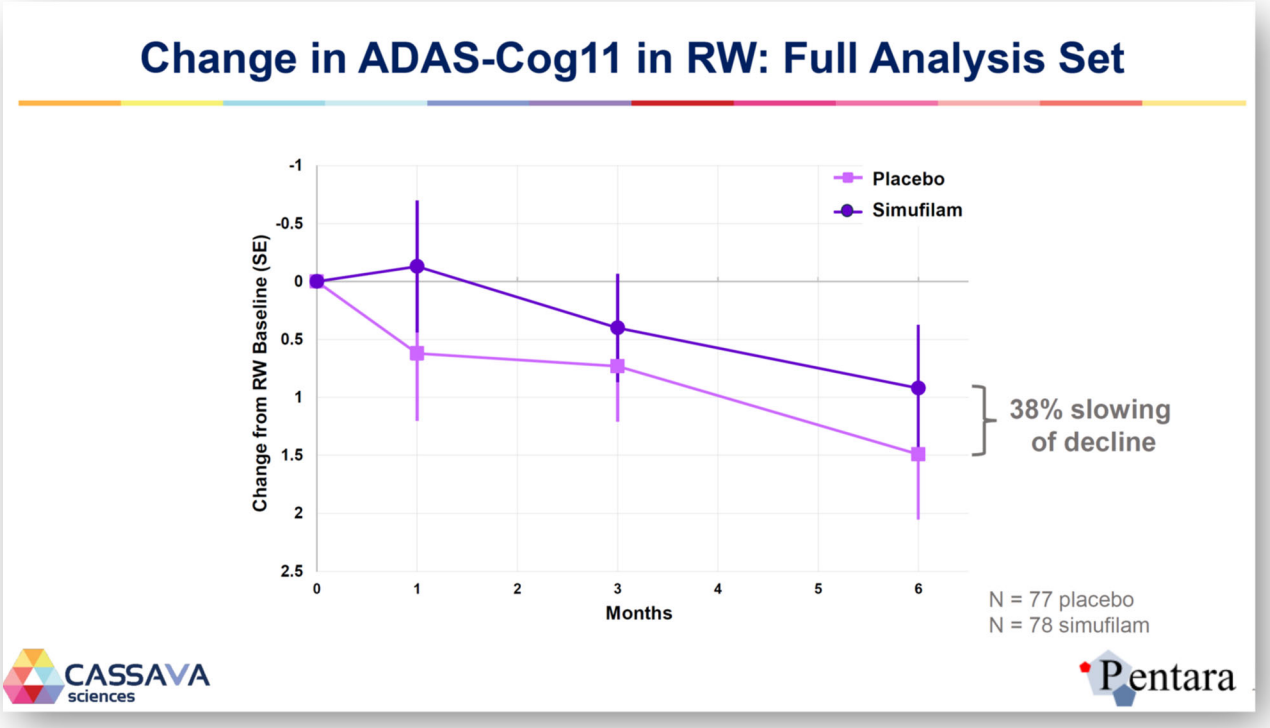
106. The below chart, prepared by Pentara, compares the ADAS-Cog scores of the 133 mild patients in the study to historical early and mild patients in placebo arms of studies. The chart shows that the 133 mild Alzheimer's disease patients who took simufilam improved cognition on average over one year. By contrast, historical experience shows a significant decline in all prior placebo study groups for early and mild Alzheimer's disease.

**3. Cognitive Maintenance Study Results**

107. In the six-month randomized, placebo-controlled withdrawal phase of the study, 157 of the 216 patients who completed the open-label trial agreed to enter a double-blind extension. Half continued to receive simufilam while the other half received a placebo. At the end of the six

months, the study measured change in cognition during that time. The goal was to determine whether any differences in change in cognition could be discerned between the two groups.

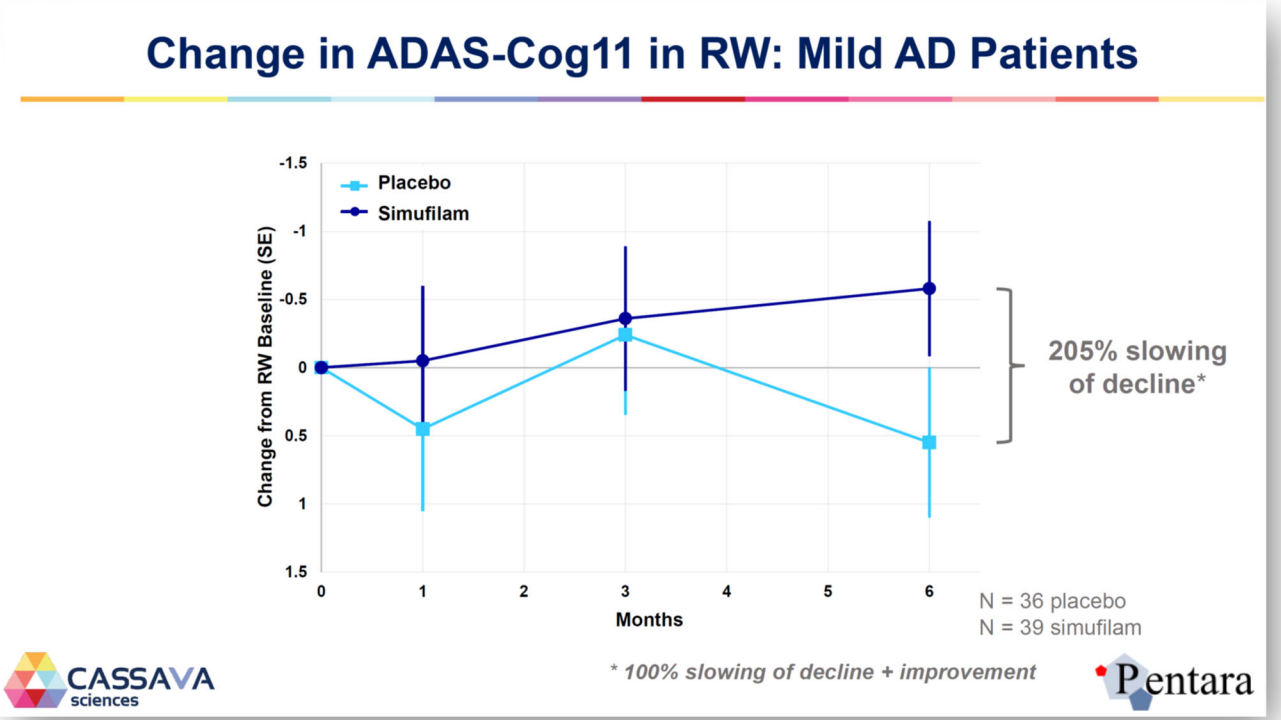
108. This randomized withdrawal trial was too small and too short to provide statistically significant results in cognition testing. Nevertheless, this small study showed encouraging results,




which were announced by Cassava on July 5, 2023. Mild-to-moderate patients taken off simufilam declined in cognition on average more than patients who remained on the drug. The difference in decline in ADAS-Cog scores was 38%. Mild-to-moderate patients on simufilam declined by 0.9 points on average over six months, while patients who switched to placebo declined by 1.5 points.

109. Mild patients who remained on simufilam improved slightly in cognition over the six-month period, while those on placebo declined. Specifically, mild patients who remained on simufilam improved cognition scores on average by 0.6 points, whereas mild patients who

switched to placebo declined by 0.6 points on average. This represents a full 1.2-point difference in change in cognition between the drug and placebo groups.




**4. 24 Month Open Label Study Results**

110. In the final six months of the trial, patients were all administered open-label simufilam for another six months, including those who had received placebo during the randomized withdrawal period. Cassava announced this 24-month data in February 2024.

111. The full 24-month study allowed comparisons of patients who took simufilam continuously versus those who took simufilam with a 6-month interruption. Over the two-year study, the patients who were categorized as mild AD on Day 1 and also took simufilam continuously showed no decline. The mild AD patients who received placebo during the randomized withdrawal period declined by 1 point. Although the precise decline or lack thereof

may be variable, these patients clearly were not declining by the expected 3-4 points per year shown in placebo groups of other trials in mild or early Alzheimer's disease.

#### 5. Phase 3 Open Label Study

112. In October 2022, Cassava announced the initiation of an open-label extension study for its Phase 3 program. The study is designed to provide no-cost access to oral simufilam for up to one year to Alzheimer's patients who have successfully completed a Phase 3 study of simufilam and who meet entry criteria. Patient enrollment began in November 2022. To date, over 500 patients entered the open-label extension study.

### E. Independent Researchers Confirm the Science Underpinning Simufilam

113. The first confirmatory study relating to simufilam by a laboratory unaffiliated with Cassava was published in February 2020. This study, titled "Filamin A inhibition reduces seizure activity in a mouse model of focal cortical malformations," was published in the journal *Science Translational Medicine*, was written by Angelique Bordey, Ph.D., and a team of researchers at Yale University. (Ex. 3.)

114. The study, which was performed using simufilam provided to the researchers by Cassava, confirmed the bioactivity of the drug (*i.e.*, that the chemical has a measurable effect on living organisms, and is not biologically inert), as well as its effect on a disease associated with dysfunctional FLNA. Specifically, the researchers tested simufilam's effects on mice, genetically modified to model a type of epilepsy that, like the human disease, overexpresses FLNA. The study concluded that simufilam treatments reduced seizure activity by over 60% in treated mice. The researchers concluded that, based on their studies, it was simufilam's "effect on FLNA that

alleviates seizures." (Ex. 3 at 8.) In other words, the study suggested that simufilam was in fact affecting the FLNA.

115. The next confirmatory study relating to simufilam was presented by Dr. Erika Peverelli and her team at the University of Milan at a European Conference in May 2023. (Ex. 4.) Similar to the Yale study, the Milan study related to a disease other than Alzheimer's disease (pituitary cancer), and utilized simufilam provided by Cassava to test the drug's impact on a disease in which FLNA is altered.

116. As part of the study, the researchers conducted tests with simufilam on both cultured human pituitary cancer cells and a rat pituitary cancer cell line. The researchers determined that treatment with simufilam reduced the phosphorylation of FLNA in both human and rat cells. In other words, the study determined that simufilam does indeed bind to and reverse alterations in FLNA.

117. Finally, in September 2023, Cassava announced new data that directly confirmed prior research findings regarding simufilam's effect on the Alzheimer's disease mechanism. (Ex. 5.) The data was generated by an independent lab, The Cochin Institute in Paris, France, that had no prior connection to Cassava. Notably, Cochin used a scientific technique that had not previously been used by Cassava's scientific collaborators.

118. The Cochin Institute developed an assay in 2019 specifically designed to measure the effectiveness of a drug in interrupting the binding of amyloid-β42 to the α7 nicotinic acetylcholine receptor—the same mechanism of action demonstrated by Cassava for simufilam to suppress Alzheimer's disease. Unlike prior experiments conducted at CUNY (some of which relied on Western blotting), the assay developed by the Cochin Institute relied on a technology called time-resolved fluorescence resonance energy transfer (TR-FRET) incorporated into a cell-based

assay to determine whether a drug prevents the binding of amyloid-β42 to the α7 nicotinic acetylcholine receptor.

119. Cassava contracted with the Cochin Institute and provided them with simufilam to run in this assay. CUNY played no role at all in running the experiment. The results of this TR-FRET analysis of simufilam were published in a peer-reviewed article in September 2023[3] and later presented those results in a poster presented at the 2023 CTAD Alzheimer's Congress.[4]

120. The Cochin Institute assay showed that the presence of simufilam interrupted the binding of amyloid-β42 to the α7 nicotinic acetylcholine receptor exactly as Cassava and its scientists had demonstrated in earlier research by other methods. The half maximal inhibitory concentration, or $IC_{50}$ is the molar concentration of a substance necessary to inhibit a biological process by 50%. As measured by the Cochin Institute, the $IC_{50}$ of simufilam in inhibiting the binding of amyloid-β42 to the α7 nicotinic acetylcholine receptor was 12.6 picomolar. This directly and independently confirms the inhibitory effect of simufilam and its potency as measured by Dr. Wang using different techniques. Those prior results were published in peer-reviewed articles in 2012 and 2017.

121. Critically, the Cochin Institute TR-FRET study independently showed that simufilam does precisely what Cassava believes it does in the brains of Alzheimer's patients. That is, simufilam interrupts amyloid-β42 binding the α7 nicotinic acetylcholine receptor.

**F. Cassava's Stock Price Rises with Successful Testing**

122. Cassava's preliminary successful testing of simufilam in its initial Open-Label Study and Phase 1 and Phase 2 Clinical Studies received attention from academics, scientists, and

[3] Wang HY, Cecon E, Dam J, Pei Z, Jockers R, Burns LH., *Simufilam Reverses Aberrant Receptor Interactions of Filamin A in Alzheimer's Disease*, INT J MOL SCI., 2023 Sept. 11;24(18):13927. doi: 10.3390/ijms241813927. PMID: 37762230; PMCID: PMC10531384. (Ex. 5).
[4] Poster available at https://www.cassavasciences.com/static-files/f11cbea3-359f-4ce9-81c6-ecf58f3dcbed.

investors. On February 1, 2021, Cassava's stock price was $22.99. Over the next six months, Cassava issued press releases announcing completion of the development milestones for simufilam.

123. With those announcements, Cassava's stock price increased. Cassava's stock price closed at $135.30 on July 28, 2021. Cassava was not only offering a promising treatment for Alzheimer's disease but also a promising investment.

124. That was before the Defendants launched their scheme. Cassava was working on the laudable goal of finding a treatment for a disease that inflicted millions of individuals and their families. Cassava worked towards that goal every working day. Defendants launched their scheme based on the ignoble goal of making money based on disinformation. Cassava built a promising product for Alzheimer's patients and value for its investors. Defendants sought to destroy both to make a profit.

## V. DEFENDANTS' SCHEME TO DEFAME CASSAVA FOR PROFIT[5]

125. Short selling is a financial bet that a stock price will decline. A speculator will short a stock if she believes it may decline in price in the future. For example, if a stock price is trading at $100 per share and she believes the price may decline sometime in the future, she could call her broker with instructions to "sell" quantity *x* of stock that she doesn't own at $100 per share. Implicitly, she also agrees to "buy back" at a future date quantity *x* of the stock she shorted.

126. Unhedged short sellers make money only if a stock price declines. If a speculator shorts a stock at $100 per share, that stock price must decline for her to make money. If a day later the price falls to $80 per share, she can buy back the stock she sold at $100 per share and pocket a quick $20 per share windfall. The converse is also true: a short seller loses money if a stock price

[5] The original emphasis in the statements published by Defendants has been omitted. All emphasis has been added.

rises. If an investor shorts a stock at $100 per share, and that stock increases to $120 per share, she has a personal loss of $20 per share.

127. Short selling is a risky scheme. There is no limit to the amount of money a short seller can lose if a stock price continues to rise. Short selling is the opposite of a buy-and-hold investment strategy. For this and other reasons, short selling is typically considered a speculative gamble more than a "Main Street" investment strategy.

128. Defendants did not invent short selling. But they did pervert it into a new way to make money. Defendants were not willing to allow Cassava's stock price to rise and fall based on investors' interpretation of factually accurate information about the Company. Instead, Defendants gamed the system. Defendants disseminated factually inaccurate information to the public. Defendants knew such factually inaccurate information would impugn Cassava's public reputation and drive down its stock price.

129. Defendants' playbook followed four easy steps: First, short Cassava's stock price. Second, disseminate false information. Third, watch investors sell Cassava's stock *en masse* as they digest Defendants' false information. Fourth and finally, make money by covering their short position in Cassava. Defendants' scheme intentionally hit Cassava where it hurts: its reputation. Defendants' behavior was so egregious that it practically guaranteed that sooner or later Cassava's stock price would fall quickly and hard. Under the Defendants, the practice of short selling went from being a risky scheme to a sure thing, reminiscent of an old movie in which a gambler asks, "Is this a game of chance?" to which W.C. Field responds, "Not the way I play it."

130. Defendants' money-making campaign was bold, creative, and highly profitable for them. It was also unlawful. Defendants' artificially deflated Cassava's stock price through a coordinated practice of releasing factually inaccurate information about the Company. Each of the

Defendants held short positions in Cassava's stock price. Defendants needed Cassava's stock price to fall to make a profit on their short positions. Defendants used their disinformation campaign to ensure that Cassava's stock price would fall so they would profit while the Company suffered.

### A. Overview of Defendants' Disinformation Campaign

131. Defendants' scheme highlights the difference between meaningful scientific debate and fabricated claims of intentional fraud. Cassava has worked with a variety of experts to develop and test simufilam, including outside experts and federal regulators. Cassava's development of simufilam has included meaningful scientific debate to ensure its drug development program is safe and effective. Defendants did not engage in meaningful scientific debate. Defendants fabricated claims about Cassava manipulating its testing and results. Defendants portray Cassava as a company engaged in fraudulent and illegal activity. These fabricated claims impute conduct by Cassava that is incompatible with professional drug development and necessarily interfered with Cassava's clinical trials. Defendants took these actions to profit from Cassava's stock price decline.

132. The Defendants' primary platform for disseminating and publishing defamatory content about Cassava has been on X, formerly known as Twitter. Indeed, during the one-year period before Cassava filed its initial Complaint in this action (November 2, 2021 – November 2, 2022), Defendant Brodkin published at least 415 posts regarding Cassava, Defendant Heilbut published at least 280 posts regarding Cassava, Defendant Milioris published at least 39 posts

regarding Cassava, and Defendant Markey published at least 36 posts regarding Cassava. Many of those posts have already been found to be defamatory by this Court.[6]

133. The common message conveyed by these posts is that Cassava engaged in fraudulent and illegal activity by, among other things, fabricating test results and lying to government agencies and investors. For instance, Defendant Heilbut alone published 36 posts about Cassava with the tag line: "ITS ALL MADE UP." Other posts include:

> It is all complete, made-up garbage. If it were not $SAVA would be earnestly and openly defending everything in a transparent scientific way . . . everything about how they operate is about contriving the appearance of desirable results. (Ex. 7, Defamatory Statement 2, November 4, 2021 Post by Defendant Heilbut)
>
> **
>
> Never $sava is a total fraud. $2 in 3 years max guaranteed. (Ex. 11, Defamatory Statement 6, November 7, 2021 Post by Defendant Brodkin)
>
> ***
>
> It took a decade for Remi[7] to build the $sava scam. Through scientific teamwork and perseverance we have exposed this fraud. The tide is turning #ENDALZ (Ex. 34, Defamatory Statement 29, December 18, 2021 Post by Defendant Brodkin)
>
> ***
>
> $SAVA science is a total fraud and those relating hopeful anecdotes about patients currently in the clinical trials are either fools or shills. (Ex. 45, Defamatory Statement 40, January 19, 2022 Post by Defendant Heilbut)
>
> ***
>
> How is it legal for $SAVA to spinal tap folks and then just make up their biomarker values? (Ex. 19, Statement 14, November 19, 2021 Post by Defendant Milioris)

[6] In its March 29, 2024 Memorandum Opinion & Order, the Court found that Cassava had adequately pleaded that 328 of the posts are defamatory *per se*. *See* ECF No. 119 at 43 and Exhibit A.

[7] "Remi" refers to Remi Barbier, the founder, President, and CEO of Cassava. He is also Chairman of Cassava's Board of Directors. He has served in these roles since the Company's inception in 1998.

134. The Defendants often tagged $SAVA (Cassava) in these posts, to ensure that they would be read by investors and others interested in following Cassava's research. What's more, they directly told people *not* to buy Cassava stock, or otherwise admitted that their scheme had been to drive down Cassava's stock price. For instance, on November 7, 2021, Defendant Brodkin posted: "Never $sava is a total fraud. $2 in 3 years max guaranteed." (Ex. 11.) Ten days later, he posted: "No Wang=No Patent=No Company - $0/share." (Ex. 17.)

135. In addition to their defamatory posts, the Defendants also published websites devoted to defaming Cassava, where they published various slide decks, reports, and other commentaries about the Company before sharing them on X. These commentaries included names such as "Sava_Theranos2.0," implying to readers that Cassava was no different than Theranos, a company that had recently been indicted for promoting a diagnostic tool that its executives knew did not work. On information and belief, the domain name "cassavafraud.com" was registered by the Defendants on October 31, 2021. The Defendants identified themselves as the owners and operators of "cassavafraud.com" as well as "simuflimflam.com," which is substantively identical to "cassavafraud.com" and, on information and belief, was registered by the Defendants at the same time (October 31, 2021). Cassava makes these allegations based on publicly available information regarding the registration of websites at the https://lookup.icann.org/en/lookup, an on-line registration lookup tool.

136. Prior to November 2, Heilbut, Markey, Milioris and Brodkin reached an agreement that they would each take short positions in Cassava's stock price and would drive down the Company's stock price by publishing factually inaccurate information. Among other things, the Defendants registered "cassavafraud.com" and "simuflimflam.com" to help them publish and disseminate the factually inaccurate information. At all times, Markey, Milioris and Brodkin knew

that Heilbut was a New York resident and that he would create and publish defamatory statements about Cassava from his New York residence. Markey, Milioris and Brodkin understood that Heilbut's publication of defamatory statements about Cassava from New York was in furtherance of their scheme to drive down Cassava's stock price so that they could profit from their own short positions.

### B. The Defendants' Disinformation Campaign About Cassava Involved a Barrage of Defamatory Statements.

137. Throughout their disinformation campaign, Defendants repeatedly made defamatory statements about Cassava, which are set forth below (collectively, **Statements 1–75**, set forth in detail below, which are referred to as the "Defamatory Statements"). All of these Defamatory Statements were published after: 1) Cassava had successfully completed its Phase 1 study, 2) Cassava had successfully completed its Phase 2a clinical study, 3) Cassava had successfully completed its Phase 2b clinical study, 4) Cassava had announced interim top-line analyses of its open-label study, which results were generated by independent investigators at sites supervised by a third-party company, Axiom, and analyzed by independent third party, Pentara Corporation, 5) FDA had approved Cassava's Phase 3 clinical studies, and 6) Cassava had initiated its Phase 3 clinical studies, which were also being run and overseen by independent, professional organizations. Moreover, Statements 70-75 were made after independent researchers at the University of Milan and Cochin Institute had published findings confirming that 1) simufilam does indeed bind to and reverse alterations in FLNA, and 2) simufilam interrupts amyloid-β42 binding the α7 nicotinic acetylcholine receptor, i.e., the mechanism of action upon which the treatment is based.

138. **Statement 1.** On November 2, 2021, Heilbut posted the following statement on his "X" account: "Not as crazy as ***photoshopping all of your studies for 20 years***... and putting a

molecule into humans based on nonsense. $SAVA[.]" (Ex. 6, emphasis added). Heilbut's statement was made in response to another Twitter user posting "Photoshopping a study is crazy!," which was on a thread started by Heilbut on October 29, 2021 regarding work by Dr. Wang on simufilam. (*Id.*)

139. Statement 1 implies that Cassava engaged in fraudulent and illegal activity by, among other things, using fabricated test results. The term "photoshopping" was reasonably understood to mean that Cassava's studies for simufilam had been altered, which means they were fabricated. Individuals reading Statement 1 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity when he said its studies were photoshopped.

140. Statement 1 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of altering the test results through photoshopping. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

141. Defendant Heilbut did not present Statement 1 as pure opinion. Individuals reading Statement 1 reasonably understood that Heilbut was conveying factual information about Cassava and its studies for simufilam. Heilbut did not provide readers of Statement 1 with any context that would allow them to make an independent assessment of Statement 1 and, therefore, he intended readers of Statement 1 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

142. Defendant Heilbut acted with actual malice when publishing Statement 1. At the time he published Statement 1, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-

fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

143. **Statement 2**. On November 4, 2021, Adrian Heilbut posted the following statement on his "X" account: "***It is all complete, made-up garbage***. If it were not $SAVA would be earnestly and openly defending everything in a transparent scientific way . . . everything about how they operate is about contriving the appearance of desirable results." (Ex. 7, emphasis added.) Heilbut's November 4, 2021 statement was posted on a thread discussing a report published by another short-seller, QCM, which accused Cassava of being a fraud that fabricated its studies and data. Statement 2 was a direct response to a post by another user asking if, regardless of what was in the QCM report, the drug may still work. (*Id.*)

144. Statement 2 implies that Cassava engaged in fraudulent and illegal activity by, among other things, using fabricated test results. The phrase "complete, made up garbage" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 2 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity when he said its studies were complete, made-up garbage.

145. Statement 2 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

146. Defendant Heilbut did not present Statement 2 as pure opinion. Individuals reading Statement 2 reasonably understood that Heilbut was conveying factual information about Cassava and its studies for simufilam. Heilbut did not provide readers of Statement 2 with any context that would allow them to make an independent assessment of Statement 2 and, therefore, he intended readers of Statement 2 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

147. Defendant Heilbut acted with actual malice when publishing Statement 2. At the time he published Statement 2, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice). Further, Heilbut completely omitted the fact that Cassava was, in fact, openly defending itself against accusations through transparent dialogue with science editors and others.

148. **Statement 3.** On November 4, 2021, Brodkin posted the following statement on his "X" account: "I will NEVER cover $sava. ***Simufilam is a frauuud***!" (Ex. 8, emphasis added.) Brodkin's November 4, 2021 statement was a standalone post without any context provided by Brodkin or others.

149. Statement 3 implies that Cassava engaged in fraudulent and illegal activity. The phrase "[s]imufilam is fraud" was reasonably understood to mean that Cassava's drug was a fake and Cassava was not telling the truth about the drug. Individuals reading Statement 3 reasonably

understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it was the proponent and inventor for a drug that was a fraud.

150. Statement 3 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

151. Defendant Brodkin did not present Statement 3 as pure opinion. Individuals reading Statement 3 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 3 with any context that would allow them to make an independent assessment of Statement 3 and, therefore, he intended readers of Statement 3 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

152. Defendant Brodkin acted with actual malice when publishing Statement 3. At the time he published Statement 3, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

153. **Statement 4.** On November 5, 2021, Heilbut posted the following statement on his "X" account: "***The lies from $SAVA never end***[.]" (Ex. 9, emphasis added.) Heilbut's November 5, 2021 statement was made in response to a post by Alexander Trevelyan (@ClicksAndHisses) discussing how The *Journal of Neuroscience* was "not interested in sharing how they verified" the Western blots provided to them by Cassava. (*Id.*)

154. Statement 4 implies that Cassava engaged in fraudulent and illegal activity by lying about its testing of simufilam. The phrase "lies" was reasonably understood to mean that Cassava's made untrue statements about simufilam with the intent to deceive. Individuals reading Statement 4 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam, including the Western blots tests.

155. Statement 4 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

156. Defendant Heilbut did not present Statement 4 as pure opinion. Individuals reading Statement 4 reasonably understood that Heilbut was conveying factual information about Cassava and its studies for simufilam. Heilbut did not provide readers of Statement 4 with any context that would allow them to make an independent assessment of Statement 4 and, therefore, he intended readers of Statement 4 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

157. Defendant Heilbut acted with actual malice when publishing Statement 4. At the time he published Statement 4, Heilbut knew he had seen no firsthand evidence showing that

Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

158. Moreover, Heilbut's actual malice is demonstrated by the fact that his statement was contradicted by the journal itself. Notably, despite the *Journal of Neuroscience* reporting that they had not found any fraudulent activity having occurred, Heilbut doubled down on his attacks against Cassava and claimed that Cassava was lying. Heilbut's decision to ignore contradictory evidence from a scientifically well-respected, disinterested third party (the *Journal of Neuroscience*) and make continued attacks on Cassava is evidence of actual malice.

159. **Statement 5**. On November 6, 2021, Brodkin posted the following statement on his "X" account: "Either ***$sava has been lying to us for months*** about having the blots or they submitted ***faked evidence*** to the Journal of Neuroscience. Pick one." (Ex. 10, emphasis added.) Brodkin's November 6, 2021 statement was made in response to the same thread by Alexander Trevelyan (@ClicksAndHisses) discussing how the *Journal of Neuroscience* was "not interested in sharing how they verified" the Western blots provided to them by Cassava. (*Id.*)

160. Statement 5 implies that Cassava engaged in fraudulent and illegal activity by lying about its testing of simufilam. The phrase "lying" was reasonably understood to mean that Cassava's made untrue statements about simufilam with the intent to deceive. The phrase "faked evidence" was reasonably understood to mean that Cassava's test results were not genuine but

rather a sham. Individuals reading Statement 5 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it either lied about the test results for simufilam, including the Western blots tests, or the test results were a sham.

161. Statement 5 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

162. Defendant Brodkin did not present Statement 5 as pure opinion. Individuals reading Statement 5 reasonably understood that Brodkin was conveying factual information about Cassava and its studies for simufilam. Brodkin did not provide readers of Statement 5 with any context that would allow them to make an independent assessment of Statement 5 and, therefore, he intended readers of Statement 5 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

163. Defendant Brodkin acted with actual malice when publishing Statement 5. At the time he published Statement 5, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

164. Moreover, Brodkin's actual malice is demonstrated by the fact that his statement was contradicted by the journal itself. Notably, despite the *Journal of Neuroscience* reporting that they had not found any fraudulent activity having occurred, Brodkin doubled down on his attacks against Cassava and claimed that the only way that could be the case were if Cassava was lying. Brodkin's decision to ignore contradictory evidence from a scientifically well-respected, disinterested third party (the *Journal of Neuroscience*) and make continued attacks on Cassava is evidence of actual malice.

165. **Statement 6.** On November 7, 2021, Brodkin posted the following statement on his "X" account: "***Never $sava is a total fraud***. $2 in 3 years max guaranteed." (Ex. 11, emphasis added.) Brodkin's November 7, 2021 statement was made in response to a November 3, 2021 post by Heilbut stating that "Cassava Sciences is a shambolic scientific charade. We have assessed virtually every aspect of Cassava's programs, & reveal a pattern of deliberate, coordinated misconduct." (*Id.*)

166. Statement 6 implies that Cassava engaged in fraudulent and illegal activity. The phrase "total fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 6 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it was nothing more than a fraud.

167. Statement 6 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally

made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

168. Defendant Brodkin did not present Statement 6 as pure opinion. Individuals reading Statement 6 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 6 with any context that would allow them to make an independent assessment of Statement 6 and, therefore, he intended readers of Statement 6 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

169. Defendant Brodkin acted with actual malice when publishing Statement 6. At the time he published Statement 6, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

170. **Statement 7.** On November 11, 2021, Heilbut posted the following statement on his "X" account: "Just to be clear: $***SAVA faked additional 'raw' data last week***, sent it to @MarinaP63 at J Neurosci to receive their 'blessing', halted the stock, then sent a press release relating this false, engineered news, causing the share price to double. Is there a legal term for that?" (Ex. 12, emphasis added.)

171. Statement 7 implies that Cassava engaged in fraudulent and illegal activity by, among other things, fabricating test results. The phrase "faked additional raw data" was reasonably understood to mean that Cassava's data was altered with the intent to deceive. Individuals reading Statement 7 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it altered data to deceive people about simufilam.

172. Statement 7 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

173. Defendant Heilbut did not present Statement 7 as pure opinion. Individuals reading Statement 7 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 7 with any context that would allow them to make an independent assessment of Statement 7 and, therefore, he intended readers of Statement 7 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

174. Defendant Heilbut acted with actual malice when publishing Statement 7. At the time he published Statement 7, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

175. Moreover, Heilbut's actual malice is demonstrated by the fact that his statement was contradicted by the journal itself. Notably, despite the *Journal of Neuroscience* reporting that they had not found any fraudulent activity having occurred, Brodkin doubled down on his attacks against Cassava and claimed that the only way that could be the case were if Cassava was lying. Brodkin's decision to ignore contradictory evidence from a scientifically well-respected, disinterested third party (the *Journal of Neuroscience*) and make continued attacks on Cassava is evidence of actual malice.

176. **Statement 8.** On November 11, 2021, Brodkin posted the following statement on his "X" account: "Get your daily $SAVA fraud here It appears that in an effort to clear themselves of manipulated image accusations ***Cassava submitted some (long pause) MANIPULATED IMAGES...*** I know right imagine the cajones and contempt that takes[.]" (Ex. 13, emphasis added.) Brodkin's November 11, 2021 statement was made in response to a November 10 post by Elisabeth Bik stating "There is a potential big concern in the provided original b-actin blot for Figure 9A. The authors/journal say the blot on the right shows the original blot with two additional lanes on the right. But I see a box around those lanes that matches the published blot's size." (*Id.*)

177. Statement 8 implies that Cassava engaged in fraudulent and illegal activity by, among other things, manipulating test results. The phrase "manipulated images" was reasonably understood to mean that Cassava changed the images from their original state to suit its purpose. Individuals reading Statement 8 reasonably understood that Brodkin was implying that Cassava

engaged in fraudulent and illegal activity because it changed images associated with the testing of simufilam from their original state to deceive people.

178. Statement 8 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not manipulated images of its testing of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

179. Defendant Brodkin did not present Statement 8 as pure opinion. Individuals reading Statement 8 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin's statement could be read in the context of Ms. Bik's statement but he told readers that her observation was due to manipulation of the image as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 8 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

180. Defendant Brodkin acted with actual malice when publishing Statement 8. At the time he published Statement 8, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

181. **Statement 9.** On November 14, 2021, Heilbut posted the following statement on his "X" account:

> The privilege to conduct trials under an IND is based on a balance of safety and potential for efficacy. If $SAVA pre-clinical and clinical data are fabricated or manipulated, or trials not properly run, there is no ethical or regulatory justification for further clinical trials.[] We know IT WILL fail because we see and understand that the ***biology was MADE UP.*** It is not a matter of hope, or optimism, or liking what one sees - ***it is all fabricated nonsense***. If you cannot understand or admit this to yourself by now, you are going to be Remi's bagholder. (Ex. 14, emphasis added.)

182. Statement 9 implies that Cassava engaged in fraudulent and illegal activity by, among other things, using fabricated test results. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. The phrase "fabricated" was reasonably understood to mean that Cassava's studies were concocted with the intent to deceive. Individuals reading Statement 9 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity when he said its studies were made up and fabricated.

183. Statement 9 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

184. Defendant Heilbut did not present Statement 9 as pure opinion. Individuals reading Statement 9 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut's statement could be read in the context of Ms. Bik's statement but he told readers that her observation was due to manipulation of the image as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of

innocent explanations and, therefore, he intended readers of Statement 9 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

185. Defendant Heilbut acted with actual malice when publishing Statement 9. At the time he published Statement 9, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

186. **Statement 10.** On November 16, 2021, Heilbut posted the following statement on his "X" account: "2005 was the foundation for 2008, 2012, 2017, and the $SAVA Simufilam IND, the Phase 2 trials, and SavaDX. ***It is all fabricated nonsense, built upon other fabricated nonsense***, and it is all going to come crashing down. [] $SAVA is perfectly happy to light NIH and investor money on fire so long as they manage to siphon off a large chunk of it for themselves[.]" (Ex. 15, emphasis added.)

187. Statement 10 implies that Cassava engaged in fraudulent and illegal activity by, among other things, using fabricated test results. The phrase "fabricated" was reasonably understood to mean that Cassava's studies were concocted with the intent to deceive. Individuals reading Statement 10 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity when he said its studies were fabricated.

188. Statement 10 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

189. Defendant Heilbut did not present Statement 10 as pure opinion. Individuals reading Statement 10 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 10 with any context that would allow them to make an independent assessment of Statement 10 and, therefore, he intended readers of Statement 10 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

190. Defendant Heilbut acted with actual malice when publishing Statement 10. At the time he published Statement 10, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

191. **Statement 11.** On November 17, 2021, Heilbut posted the following statement on his "X" account: "this is just the start… the ***whole $SAVA charade*** is going to unravel now cc: @MarinaP63 and I have no doubt that the SEC is going to investigate the stunt $SAVA pulled two weeks ***submitting additional fabricated data*** [] in a fake 'Erratum' to fool the Journal of

Neuroscience into issuing a statement of 'exoneration' the Ph2 clinical data is very much in doubt here too. I agree that this is a rare or unprecedented situation... typically when something like this happens, the sponsor admits it and stops the trial themselves." (Ex. 16, emphasis added.)

192. Statement 11 implies that Cassava engaged in fraudulent and illegal activity by, among other things, using fabricated test results. The phrase "charade" was reasonably understood to mean that Cassava was presenting an image to people about itself and its drug that was clearly false. The phrase "fabricated data" was reasonably understood to mean that Cassava's studies were concocted with the intent to deceive. Individuals reading Statement 11 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it fabricated data and presented a false image of itself and its drug.

193. Statement 11 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

194. Defendant Heilbut did not present Statement 11 as pure opinion. Individuals reading Statement 11 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 11 with any context that would allow them to make an independent assessment of Statement 11 and, therefore, he intended readers of Statement 11 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

195. Defendant Heilbut acted with actual malice when publishing Statement 11. At the time he published Statement 11, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

196. Moreover, Heilbut's actual malice is demonstrated by the fact that his statement was contradicted by the journal itself. Notably, despite the *Journal of Neuroscience* reporting that they had not found any fraudulent activity having occurred, Heilbut doubled down on his attacks against Cassava and claimed that the only way that could be the case were if Cassava was lying. Brodkin's decision to ignore contradictory evidence from a scientifically well-respected, disinterested third party (the *Journal of Neuroscience*) and make continued attacks on Cassava is evidence of actual malice.

197. **Statement 12.** On November 17, 2021, Brodkin posted the following statement on his "X" account: "So will CUNY circle the wagons around $***sava fraud*** Wang with the SEC looking over their shoulder? (I'm guessing they won't ) [] No Wang=No Patent=No Company=$0/share[.]" (Ex. 17, emphasis added.) Brodkin's November 17, 2021 statement was a standalone post without any context provided by Brodkin or others. He responded to a nonparty commenting on his post to "Place your bet, the market is still open." (*Id.*)

198. Statement 12 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 12 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it was nothing more than a fraud.

199. Statement 12 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

200. Defendant Brodkin did not present Statement 12 as pure opinion. Individuals reading Statement 12 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 12 with any context that would allow them to make an independent assessment of Statement 12 and, therefore, he intended readers of Statement 12 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

201. Defendant Brodkin acted with actual malice when publishing Statement 12. At the time he published Statement 12, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

202. **Statement 13.** On November 18, 2021, Heilbut posted the following statement on his "X" account: "I have no idea, but if someone was looking for ***people lying to pump in order to sell, the first logical place to check for liars would be $SAVA management***." (Ex. 18, emphasis added.) Statement 13 was made in response to a post by Brodkin stating that "No one on Twitter is in any fear of any of that stuff. Mostly that thing is lying to drop price in order to buy, or lying to pump in order to sell... neither happening here, let's move on from this silly distraction." (*Id.*)

203. Statement 13 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrases "lying" and "liars" were reasonably understood to mean that Cassava's made untrue statements about simufilam with the intent to deceive. The phrase "pump in order to sell" was reasonably understood to mean that Cassava's management was lying about simufilam to increase the company's stock price before they sold stock. Individuals reading Statement 13 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

204. Statement 13 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

205. Defendant Heilbut did not present Statement 13 as pure opinion. Individuals reading Statement 13 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 13 with any context that would allow them to make an independent assessment of Statement 13 and, therefore, he intended readers of Statement 13 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

206. Defendant Heilbut acted with actual malice when publishing Statement 13. At the time he published Statement 13, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, he knew that the results of testing on simufilam had been positive, and he knew there was no evidence that Cassava's management had sold stock in Cassava. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

207. **Statement 14.** On November 19, 2021, Milioris posted the following statement on his "X" account: "How is it legal for $SAVA to spinal tap folks and then just ***make up their biomarker values***?" (Ex. 19, emphasis added.) Milioris's November 19, 2021 statement was a standalone post without any context provided by Milioris or others. Commenting on his own post, Milioris also posted a link to Cassavafraud.com. (*Id.*)

208. Statement 14 implies that Cassava engaged in fraudulent and illegal activity by, among other things, using fabricated test results. The phrase "make up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not

real. Individuals reading Statement 14 reasonably understood that Milioris was implying that Cassava engaged in fraudulent and illegal activity when he said its studies were made up.

209. Statement 14 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

210. Defendant Milioris did not present Statement 14 as pure opinion. Individuals reading Statement 14 reasonably understood that Milioris was conveying factual information about simufilam. Milioris did not provide readers of Statement 14 with any context that would allow them to make an independent assessment of Statement 14 and, therefore, he intended readers of Statement 14 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

211. Defendant Milioris acted with actual malice when publishing Statement 14. At the time he published Statement 14, Milioris knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

212. **Statement 15.** On November 19, 2021, Brodkin posted the following statement on his "X" account: "To stop a sociopath from ***defrauding investors*** and harming elderly sick people

and their families $sava[.]" (Ex. 20, emphasis added). Brodkin's November 19, 2021 statement was made in response to Brodkin's earlier post sharing a screenshot of an email from Hoau-Yan Wang telling a researcher that simufilam is only available through Cassava Sciences. (*Id.*)

213. Statement 15 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "defrauding investors" was reasonably understood to mean that Cassava's made untrue statements about simufilam with the intent to deceive investors. Individuals reading Statement 15 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam to pump up its stock price.

214. Statement 15 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

215. Defendant Brodkin did not present Statement 15 as pure opinion. Individuals reading Statement 15 reasonably understood that Brodkin was conveying factual information about Cassava and its management. Brodkin did not provide readers of Statement 15 with any context that would allow them to make an independent assessment of Statement 15 and, therefore, he intended readers of Statement 15 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

216. Defendant Brodkin acted with actual malice when publishing Statement 15. At the time he published Statement 15, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there

were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, he knew that the results of testing on simufilam had been positive, and he knew there was no evidence that Cassava's management had sold stock in Cassava. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

217. **Statement 16.** On November 21, 2021, Brodkin posted the following statement on his "X" account: "Allowing an ***obvious fraud like $sava*** to continue to take advantage of patients, investors and families makes a mockery of our regulatory framework and markets. [] 50:50 Remi ends up behind bars." (Ex. 21, emphasis added.) Brodkin's November 21, 2021 statement was in response to another poster stating that he personally thinks Phase 3 trials of Simufilam will be successful and to let the FDA decide its effectiveness. (*Id.*)

218. Statement 16 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 16 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it was nothing more than a fraud.

219. Statement 16 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

220. Defendant Brodkin did not present Statement 16 as pure opinion. Individuals reading Statement 16 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 16 with any context that would allow them to make an independent assessment of Statement 16 and, therefore, he intended readers of Statement 16 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

221. Defendant Brodkin acted with actual malice when publishing Statement 16. At the time he published Statement 16, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

222. **Statement 17.** On November 23, 2021, Brodkin made the following statement on his "X" account: "For those of you that may have been confused by@SfNJournals decision to actively ***participate in fraud by exonerating $sava*** and surrendering their scientific integrity and voice to Remi, I put a helpful explainer here cc: @MarinaP63 @JuanLenna1 @bany_everitt @SECEnfDirector[.]" (Ex. 22, emphasis added.) Brodkin's November 23, 2021 statement was in a standalone post without any context provided by Brodkin or others. (*Id.*)

223. Statement 17 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and

lied about its activities and products. Individuals reading Statement 17 reasonably understood that Brodkin was implying that the journal was participating in Cassava's fraudulent and illegal activity.

224. Statement 17 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

225. Defendant Brodkin did not present Statement 17 as pure opinion. Individuals reading Statement 17 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 17 with any context that would allow them to make an independent assessment of Statement 17 and, therefore, he intended readers of Statement 16 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

226. Defendant Brodkin acted with actual malice when publishing Statement 17. At the time he published Statement 17, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

227. Moreover, Brodkin actual malice is demonstrated by the fact that his statement was contradicted by the journal itself. Notably, despite the *Journal of Neuroscience* reporting that they had not found any fraudulent activity having occurred, Brodkin doubled down on his attacks against Cassava and claimed that the only way that could be the case were if Cassava was lying. Brodkin's decision to ignore contradictory evidence from a scientifically well-respected, disinterested third party (the *Journal of Neuroscience*) and make continued attacks on Cassava is evidence of actual malice.

228. **Statement 18.** On November 24, 2021, Heilbut posted the following statement on his "X" account: "I'm not assuming anything. The statement put out by JN was patently ridiculous. ***The 'original' blot provided in the Erratum was faked***. They need to explain or correct their statement and Erratum, and explain the process that that led to it. @MarinaP63 $SAVA." (Ex. 23, emphasis added.) Heilbut's November 24, 2021 statement was made in response to the *Journal of Neuroscience's* public statement that it found no evidence of data manipulation. (Ex. 23.)

229. Statement 18 implies that Cassava engaged in fraudulent and illegal activity by, among other things, fabricating test results. The phrase "faked" was reasonably understood to mean that Cassava's data was altered with the intent to deceive. Individuals reading Statement 18 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it altered data to deceive people about simufilam.

230. Statement 18 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real

testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

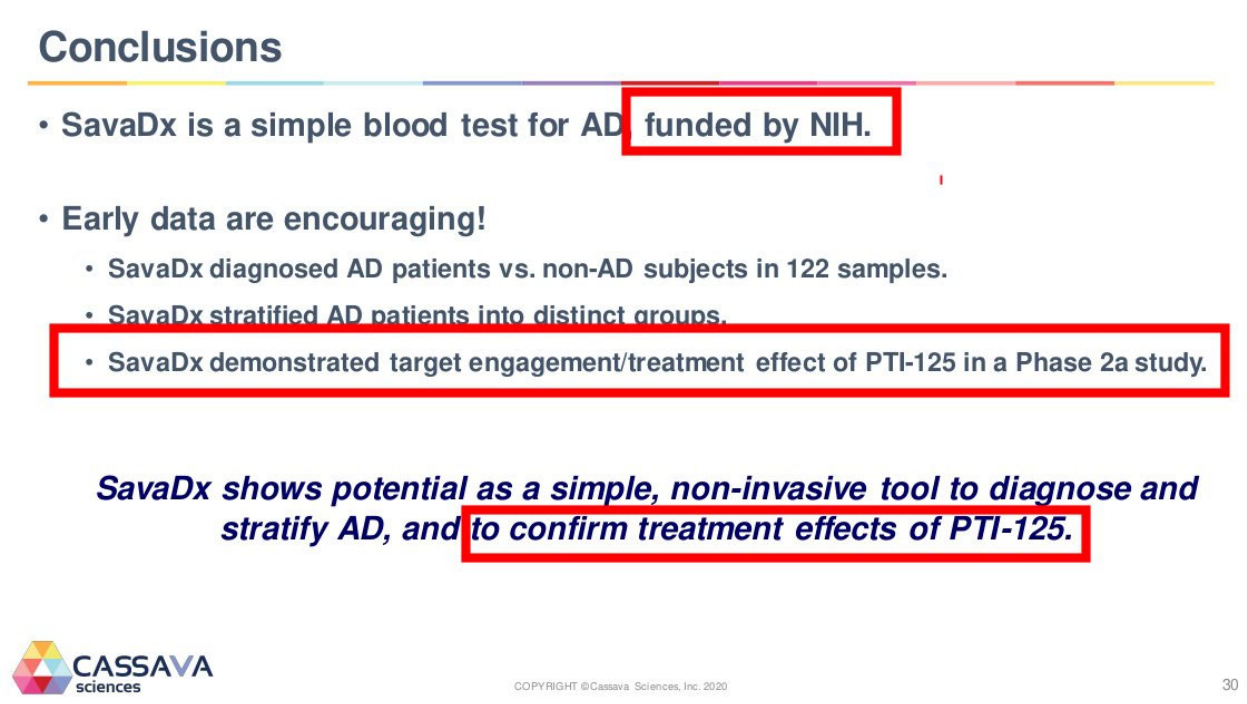
231. Defendant Heilbut did not present Statement 18 as pure opinion. Individuals reading Statement 18 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 18 with any context that would allow them to make an independent assessment of Statement 18 and, therefore, he intended readers of Statement 18 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

232. Defendant Heilbut acted with actual malice when publishing Statement 18. At the time he published Statement 18, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

233. Moreover, Heilbut's actual malice is demonstrated by the fact that his statement was contradicted by the journal itself. Notably, despite the *Journal of Neuroscience* reporting that they had not found any fraudulent activity having occurred, Brodkin doubled down on his attacks against Cassava and claimed that the only way that could be the case were if Cassava was lying. Brodkin's decision to ignore contradictory evidence from a scientifically well-respected,

disinterested third party (the *Journal of Neuroscience*) and make continued attacks on Cassava is evidence of actual malice.

234. **Statement 19.** On November 30, 2021, Heilbut posted the following statement on his "X" account: "The truth about $SAVA ***SavaDx is that is a FAKE assay***, the only purpose of which is to provide 'confirmation' of the 'treatment effects' of $SAVA's inert drug that does not and cannot bind Filamin-A [] Remi is a special kind of genius. https://cassavafraud.com/docs/SAVADx_Theranos2.0.pdf[.]" (Ex. 24, emphasis added.) Heilbut's November 30, 2021 statement was a standalone post without any context provided by Heilbut or others. Heilbut posted the following image along with his statement:




(*Id.*)

235. Statement 19 implies that Cassava engaged in fraudulent and illegal activity by, among other things, fabricating test results. The phrase "fake" was reasonably understood to mean that Cassava's diagnostic product candidate (SavaDx) was not a real diagnostic product. Likewise,

the file name "Theranos2.0" was reasonably understood to refer to a company that had recently been indicted for promoting a diagnostic tool that its executives knew did not work. Individuals reading Statement 19 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it knowingly used a fake diagnostic product to support its testing results.

236. Statement 19 was factually and demonstrably false. Cassava did not use or rely on SavaDx to fabricate test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam, including in its use of a SavaDx. And Cassava has not knowingly or intentionally made any material misstatements about simufilam or SavaDx. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

237. Defendant Heilbut did not present Statement 19 as pure opinion. Individuals reading Statement 19 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 19 with any context that would allow them to make an independent assessment of Statement 19 and, therefore, he intended readers of Statement 19 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

238. Defendant Heilbut acted with actual malice when publishing Statement 19. At the time he published Statement 19, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he had seen no firsthand evidence showing that SavaDx generated fabricated or unreliable test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew

Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

239. **Statement 20.** On December 7, 2021, Heilbut posted the following statement on his "X" account: "He's talking about measuring CSF/Plasma albumin, not SavaDx. That was done so $SAVA could claim a 'Treatment Benefit' on BBB integrity. And it was not done properly or using routine clinical methods, and the ***numbers are complete manipulated garbage***." (Ex. 25, emphasis added.) Heilbut's December 7, 2021 statement was made in response to a post by a nonparty discussing the measuring of albumin in the Phase 2b study, stating "there are clear clin/reg reasons. Recall why these studies were done in the first place; to explore various assay methods using SavaDx for later refinement and possible use as a 2ndary endpoint in pivotals - only then SOP to transfer such an assay to a CAP/CLIA central lab." (*Id.*)

240. Statement 20 implies that Cassava engaged in fraudulent and illegal activity by, among other things, manipulating test results. The phrase "manipulated garbage" was reasonably understood to mean that Cassava changed the testing numbers from their original state to suit its purpose. Individuals reading Statement 20 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it changed numbers associated with the testing of simufilam from their original state to deceive people.

241. Statement 20 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not manipulated numbers associated with its testing of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

242. Defendant Heilbut did not present Statement 20 as pure opinion. Individuals reading Statement 20 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 20 with any context that would allow them to make an independent assessment of Statement 20 and, therefore, he intended readers of Statement 20 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

243. Defendant Heilbut acted with actual malice when publishing Statement 20. At the time he published Statement 20, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

244. **Statement 21.** Heilbut subsequently stated on December 9, 2021 in the same thread that: "The premise of the ***entire charade*** (both for AD and for Bordey's bizarre claims) is that the drug binds FLNA. The ***key data*** $SAVA showed to establish that is physically impossible and ***MADE UP***. It is all a ***complete fraud***." (Ex. 26, emphasis added.)

245. Statement 21 implies that Cassava engaged in fraudulent and illegal activity. The phrase "charade" was reasonably understood to mean that Cassava was presenting an image to people about itself and its drug that was clearly false. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they

were not real. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 21 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it published "made up" data about simufilam and was nothing more than a fraud.

246. Statement 21 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

247. Defendant Heilbut did not present Statement 21 as pure opinion. Individuals reading Statement 21 reasonably understood that Heilbut was conveying factual information about Cassava. Heilbut did not provide readers of Statement 21 with any context that would allow them to make an independent assessment of Statement 21 and, therefore, he intended readers of Statement 21 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

248. Defendant Heilbut acted with actual malice when publishing Statement 21. At the time he published Statement 21, Heilbut knew that he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

249. Moreover, Heilbut's actual malice is demonstrated by the fact that his statement was contradicted by journal articles. The journal articles being discussed on the thread provided accurate information regarding the foundational science relied upon by Cassava in the development and testing of simufilam. These journal articles confirmed the potential effectiveness of simufilam, the drug's engagement with FLNA, and the valid scientific basis for simufilam. None of these journal articles contain fabricated, manipulated, or doctored information; and, none of these journal articles have been withdrawn for containing fabricated, manipulated, or doctored information. Nonetheless, Heilbut published statements and made implications about Cassava contradicted by these, and other, journal articles.

250. **Statement 22.** On December 9, 2021, Brodkin posted the following statement to his "X" account: "No. I don't want to reward ***fraudulent data***. [] $sava should be punished so that others do not attempt ***this scam***. The best thing for AD research and patients is to maintain a ***fraud free*** and fact based investment environment[.]" (Ex. 27, emphases added.) Brodkin's December 9, 2021 statement was made in response to a post by a non-party asking Brodkin if he was "willing to give that chance to the neutrals who don't care about $sava or the mistakes in paper/patent but wanna see if the drug can work?" and pointing out that Simufilam "can't be passing the phase 2 trials or reducing hard-to-treat seizures if it didn't have any biological activity in the brain." (*Id.*)

251. Statement 22 implies that Cassava engaged in fraudulent and illegal activity by, among other things, fabricating test results. The phrase "fraudulent data" was reasonably understood to mean that the data presented by Cassava was manipulated to deceive people. The phrase "scam" was reasonably understood to mean that Cassava was presenting an image to people

about itself and its drug that was clearly false. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 22 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it published "fraudulent" data about simufilam and was nothing more than a fraud.

252. Statement 22 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

253. Defendant Brodkin did not present Statement 22 as pure opinion. Individuals reading Statement 22 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 22 with any context that would allow them to make an independent assessment of Statement 22 and, therefore, he intended readers of Statement 22 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

254. Defendant Brodkin acted with actual malice when publishing Statement 22. At the time he published Statement 22, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

255. **Statement 23.** On December 10, 2021, Defendants published a 9-page report titled "Cassava and the Wang Lab: Seeing Through the Blind" on December 10, plus a 21-page Appendix. (Ex. 28.) The purpose of the December 10 report was to accuse Cassava of lying. The report asserts Cassava's testing of simufilam was not "blind," meaning the laboratory conducting the test knew if it was testing results for patients who took the placebo or simufilam. Among other things, the December 10 report states:

> Emails retrieved from a FOIL [New York's Freedom of Information Law] request to CUNY expose Cassava and the Wang lab as being unblinded during sample analysis, prior to data presentation and while study is ongoing. (*Id.* at 4.)
>
> ***
>
> Hence, whether a patient is ON or OFF the drug is known to the person analyzing samples. This could allow Wang to decide what sample measurements "should be." (*Id.* at 5.)

The purpose of the December 10 report was to convey that Cassava engaged in fraudulent and illegal activity because Cassava had manipulated the testing associated with the drug. In this report, the manipulation was done because, according to the Defendants, the labs were not blind when testing the samples.

256. On information and belief, the Defendants did not send the December 10 report to the FDA. Instead, the Defendants published and disseminated the December 10 report on their open-access websites, "cassavafraud.com" and "simuflimflam.com." They published the report on these open-access websites so that it would be read by Cassava's investors and potential investors.

That was how the Defendants could deflate Cassava's stock price so they could profit from their own short positions.

257. Statement 23 was factually and demonstrably false. The testing results published by Cassava were done by individuals who were "blind" to whether they were analyzing samples from a patient who took a placebo or simufilam. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

258. Defendants did not present Statement 23 as pure opinion. Individuals reading Statement 23 reasonably understood that Defendants were conveying factual information about Cassava. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

259. Defendants acted with actual malice when publishing Statement 23. At the time they published Statement 23, Defendants knew they had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, they understood that they had seen no firsthand evidence showing that Cassava used or encouraged testing methods other than those represented to be following (including unblind testing), they understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, they knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, they knew that Cassava's testing and protocols had been reviewed by multiple agencies, they knew Cassava's testing had been reviewed by independent experts, and they knew that Cassava's test results to date had been positive for simufilam. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

260. **Statement 24.** On December 11, 2021, Brodkin posted the following statement on his "X" account: "Key is 'confines of the study', obv Pei and Wang lab are supposed to be blind according to SEC filings and *very probably* study protocol. It's a ***shit-show of fraud*** and incompetence. SEC has been informed of $sava lies on filings[.]" (Ex. 29, emphasis added.) Brodkin's December 11, 2021 statement was in response to a post by a nonparty stating, "I don't believe that people voluntarily participating in experimental drug research are not providing consent to their 'initials' to be used within the confines of the study." (*Id.*)

261. Statement 24 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 24 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because its experiments testing simufilam and results of those experiments were intentionally designed to deceive people.

262. Statement 24 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

263. Defendant Brodkin did not present Statement 24 as pure opinion. Individuals reading Statement 24 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 24 with any context that would allow them to make an independent assessment of Statement 24 and, therefore, he intended readers of

Statement 24 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

264. Defendant Brodkin acted with actual malice when publishing Statement 24. At the time he published Statement 24, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

265. **Statement 25.** On December 13, 2021, Brodkin posted the following statement on his "X" account: "So much easier to let the rest of society ***bear the costs of $sava fraud*** than to act responsibly and do your job, right @MarinaP63? (Even when the investigation was done for you 0_0) cc: @TurrigianoLab[.]" (Ex. 30, emphasis added). Brodkin's December 13, 2021 statement was a standalone post without any context provided by Brodkin or others. His post included a link to an entirely irrelevant article published on Science.org titled "Researcher at the center of an epic fraud remains an enigma to those who exposed him." (*Id.*) The article concerned an unrelated scientist named Yoshihiro Sato. (*Id.*) There is no mention of Cassava or Simufilam in the article. (*Id.*)

266. Statement 25 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 25 reasonably understood that

Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud and made the reference in connection with an article about an "epic fraud" involving another drug.

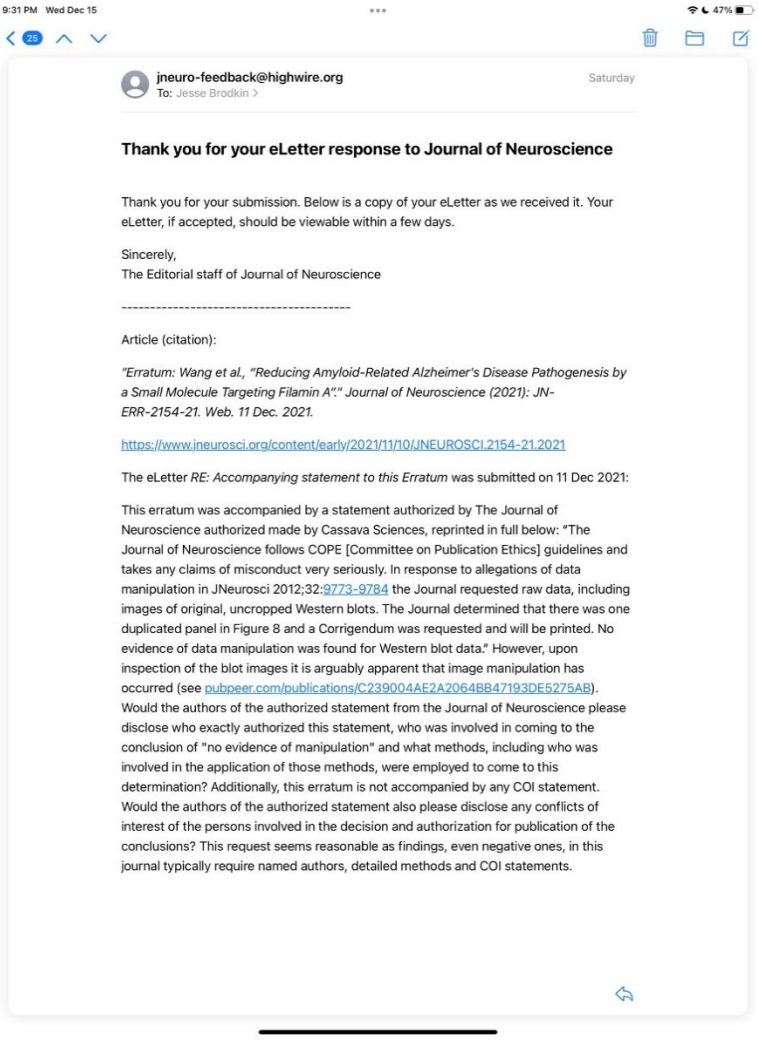
267. Statement 25 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

268. Defendant Brodkin did not present Statement 25 as pure opinion. Individuals reading Statement 25 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 25 with any context that would allow them to make an independent assessment of Statement 25 and, therefore, he intended readers of Statement 25 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

269. Defendant Brodkin acted with actual malice when publishing Statement 25. At the time he published Statement 25, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

270. **Statement 26.** On December 16, 2021, Brodkin posted the following statement on his "X" account: "It looks like my perfectly reasonable letter regarding an opaque investigation of the ***$sava manipulated images*** by JoN didn't make the latest issue. I trust electronic publication can proceed without further delay [] The scientific community deserves transparency @MarinaP63[.]" (Ex. 31, emphasis added.) Brodkin's December 16, 2021, statement was made in response to an eLetter Brodkin submitted to the *Journal of Neuroscience* that was not published:



9:31 PM Wed Dec 15 — 47%

jneuro-feedback@highwire.org
To: Jesse Brodkin >
Saturday

**Thank you for your eLetter response to Journal of Neuroscience**

Thank you for your submission. Below is a copy of your eLetter as we received it. Your eLetter, if accepted, should be viewable within a few days.

Sincerely,
The Editorial staff of Journal of Neuroscience

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Article (citation):

*"Erratum: Wang et al., "Reducing Amyloid-Related Alzheimer's Disease Pathogenesis by a Small Molecule Targeting Filamin A"." Journal of Neuroscience (2021): JN-ERR-2154-21. Web. 11 Dec. 2021.*

https://www.jneurosci.org/content/early/2021/11/10/JNEUROSCI.2154-21.2021

The eLetter *RE: Accompanying statement to this Erratum* was submitted on 11 Dec 2021:

This erratum was accompanied by a statement authorized by The Journal of Neuroscience authorized made by Cassava Sciences, reprinted in full below: "The Journal of Neuroscience follows COPE [Committee on Publication Ethics] guidelines and takes any claims of misconduct very seriously. In response to allegations of data manipulation in JNeurosci 2012;32:9773-9784 the Journal requested raw data, including images of original, uncropped Western blots. The Journal determined that there was one duplicated panel in Figure 8 and a Corrigendum was requested and will be printed. No evidence of data manipulation was found for Western blot data." However, upon inspection of the blot images it is arguably apparent that image manipulation has occurred (see pubpeer.com/publications/C239004AE2A2064BB47193DE5275AB). Would the authors of the authorized statement from the Journal of Neuroscience please disclose who exactly authorized this statement, who was involved in coming to the conclusion of "no evidence of manipulation" and what methods, including who was involved in the application of those methods, were employed to come to this determination? Additionally, this erratum is not accompanied by any COI statement. Would the authors of the authorized statement also please disclose any conflicts of interest of the persons involved in the decision and authorization for publication of the conclusions? This request seems reasonable as findings, even negative ones, in this journal typically require named authors, detailed methods and COI statements.

(*Id.*)

271. Statement 26 implies that Cassava engaged in fraudulent and illegal activity by, among other things, manipulating test results. The phrase "manipulated images" was reasonably understood to mean that Cassava changed the images from their original state to suit its purpose. Individuals reading Statement 26 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it changed images associated with the testing of simufilam from their original state to deceive people.

272. Statement 26 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not manipulated images of its testing of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

273. Defendant Brodkin did not present Statement 26 as pure opinion. Individuals reading Statement 26 reasonably understood that Brodkin was conveying factual information about simufilam. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

274. Defendant Brodkin acted with actual malice when publishing Statement 26. At the time he published Statement 26, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

275. **Statement 27.** On December 17, 2021, Brodkin posted the following statement on his "X" account: "I think the cognitive scores, like the biomarker data are ***lies and meant to defraud*** investors and contaminate the market for real science. $sava does a disservice to AD patients, and investors. What I have said about ***$sava research is true and undisputed by $sava***" (Ex. 32, emphases added.) Brodkin's December 17, 2021, statement was made in response to a post by Joe Springer (@JoeSpringer), a stock analyst. Springer's original post included a link to a YouTube video wherein Springer discussed the potential benefits of buying stock in Cassava Sciences as simufilam clinical trials were ongoing. (*Id.*) (Ex. 32.)

276. Statement 27 implies that Cassava engaged in fraudulent and illegal activity by lying about its testing of simufilam. The phrase "lies" was reasonably understood to mean that Cassava's made untrue statements about simufilam with the intent to deceive. The phrase "defraud" was reasonably understood to mean that Cassava intended to mislead people about the testing results. Individuals reading Statement 27 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

277. Statement 27 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava has not made any knowingly or intentionally made any misstatements about simufilam. And Cassava did not agree with what Brodkin had said about its research; rather, it had publicly disputed such claims. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

278. Defendant Brodkin did not present Statement 27 as pure opinion. Individuals reading Statement 27 reasonably understood that Brodkin was conveying factual information about

Cassava and its studies for simufilam. Brodkin did not provide readers of Statement 27 with any context that would allow them to make an independent assessment of Statement 27 and, therefore, he intended readers of Statement 27 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

279. Defendant Brodkin acted with actual malice when publishing Statement 27. At the time he published Statement 27, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

280. **Statement 28.** On December 17, 2021, Brodkin posted the following statement on his "X" account: "Important point on the continuing obligation JoN has to it's readers and the scientific community regarding ***$sava fraud*** in it's journal[.]" (Ex. 33, emphasis added.) Brodkin's December 17, 2021, statement was made in response to a post by Alexander Trevelyan (@ClicksAndHisses) discussing the Expression of Concern erratum published in *The Journal of Neuroscience*. (*Id.*)

281. Statement 28 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 28 reasonably understood that

Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud.

282. Statement 28 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

283. Defendant Brodkin did not present Statement 28 as pure opinion. Individuals reading Statement 28 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 28 with any context that would allow them to make an independent assessment of Statement 28 and, therefore, he intended readers of Statement 28 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

284. Defendant Brodkin acted with actual malice when publishing Statement 28. At the time he published Statement 28, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

285. **Statement 29.** On December 18, 2021, Brodkin posted the following statement on his "X" account: "It took a decade for Remi to build the ***$sava scam***. Through scientific teamwork and perseverance we have exposed this ***fraud***. The tide is turning #ENDALZ." (Ex. 34, emphases added.) Brodkin's December 18, 2021, statement was made in response to a post by Augustus Barnes (@barnes_augustus) discussing that the *Journal of Neuroscience* had published an Expression of Concern regarding two papers by Dr. Hoau-Yan Wang. (Ex. 34.)

286. Statement 29 implies that Cassava engaged in fraudulent and illegal activity. The phrase "scam" was reasonably understood to mean that Cassava was presenting an image to people about itself and its drug that was clearly false. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 29 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud.

287. Statement 29 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

288. Defendant Brodkin did not present Statement 29 as pure opinion. Individuals reading Statement 29 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 29 with any context that would allow them to make an independent assessment of Statement 29 and, therefore, he intended readers of Statement 29 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

289. Defendant Brodkin acted with actual malice when publishing Statement 29. At the time he published Statement 29, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

290. **Statement 30.** On December 20, 2021, Brodkin posted the following statement on his "X" account: "But just on sheer impact, this guy is probably the winner. An ***image manipulation*** in response to questions of image manipulation followed by ***market manipulation***. I could see jail time and an Editor resigning justified by this one pic alone. $sava" (Ex. 35, emphasis added.) Brodkin's December 20, 2021, statement was made in response to his own post inviting others to reply with their favorite of "$sava's most brazen lie[s]." (*Id.*) Brodkin posted a series of images.

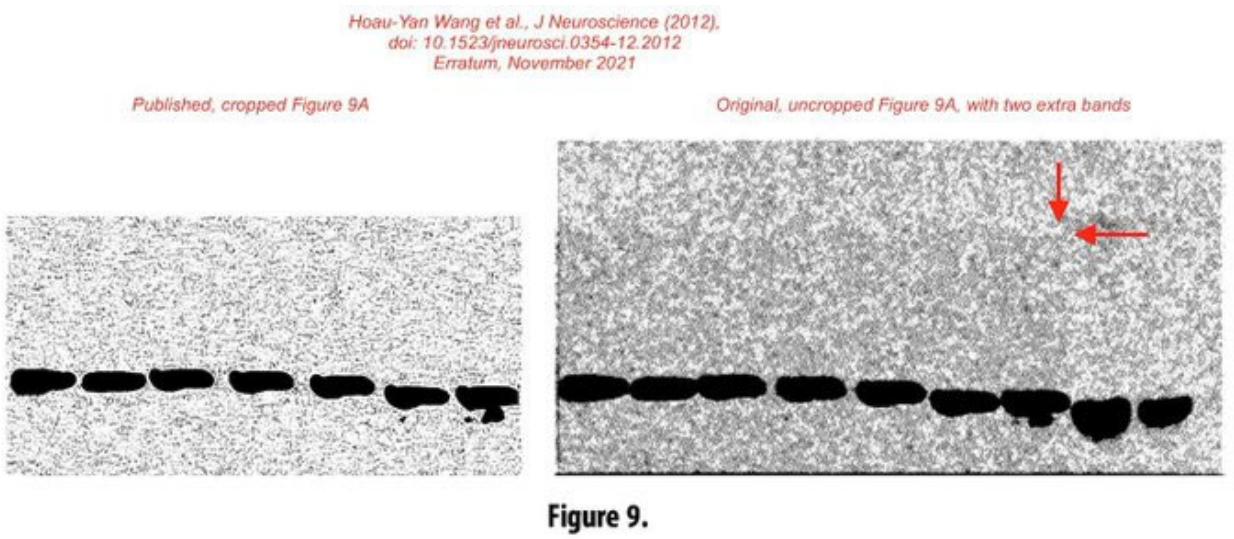



**Figure 9.**

(*Id.*)

291. Statement 30 implies that Cassava engaged in fraudulent and illegal activity by, among other things, manipulating test results. The phrase "image manipulation" was reasonably understood to mean that Cassava changed the images from their original state to suit its purpose. The phrase "market manipulation" was reasonably understood to mean that Cassava was lying in its public statements to drive up its stock price. Individuals reading Statement 30 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it changed images associated with the testing of simufilam from their original state to deceive people and artificially increase its stock price.

292. Statement 30 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava has not manipulated images of its testing of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

293. Defendant Brodkin did not present Statement 30 as pure opinion. Individuals reading Statement 30 reasonably understood that Brodkin was conveying factual information about simufilam. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

294. Defendant Brodkin acted with actual malice when publishing Statement 30. At the time he published Statement 30, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

295. **Statement 31.** On December 21, 2021, Heilbut posted the following statement on his "X" account: "Decent chance that $SAVA ends red… Just another pathetic and increasingly desperate ***pump-and-dump*** onto the ignorant and credulous. ***It is all made up***." (Ex. 36, emphases added.) Statement 31 was a standalone post without any context provided by Heilbut or others. (Ex. 36.)

296. Statement 31 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "pump-and-dump" was reasonably understood to mean that Cassava's management was lying about simufilam to increase the company's stock price before they sold stock. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 31 reasonably understood that Heilbut was implying that

Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

297. Statement 31 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

298. Defendant Heilbut did not present Statement 31 as pure opinion. Individuals reading Statement 31 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 31 with any context that would allow them to make an independent assessment of Statement 31 and, therefore, he intended readers of Statement 31 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

299. Defendant Heilbut acted with actual malice when publishing Statement 31. At the time he published Statement 31, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, he knew that the results of testing on simufilam had been positive, and he knew there was no evidence that Cassava's management had sold stock in Cassava. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

300. **Statement 32.** On December 21, 2021, Brodkin posted the following statement on his "X" account: "$sava is doing societal harm as well as committing ***securities fraud by lying about their 'science[.]'"*** (Ex. 37, emphasis added.)

301. Statement 32 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "securities fraud" was reasonably understood to mean that Cassava's management was lying about simufilam to increase the company's stock price before they sold stock. Individuals reading Statement 32 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

302. Statement 32 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

303. Defendant Brodkin did not present Statement 32 as pure opinion. Individuals reading Statement 32 reasonably understood that Brodkin was conveying factual information about Cassava and its management. Brodkin did not provide readers of Statement 32 with any context that would allow them to make an independent assessment of Statement 32 and, therefore, he intended readers of Statement 32 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

304. Defendant Brodkin acted with actual malice when publishing Statement 32. At the time he published Statement 32, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there

were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

305. **Statement 33.** On December 29, 2021, Brodkin posted the following statement on his "X" account: "It doesn't matter WHO points out the ***fraud and lies of $sava*** (ad hominem #1). Not baseless as Remi already admitted 'visual errors' (you're plain wrong or lying) Wester Blots are the foundation of sava's science 'Clean' is just wishful thinking #10. You look foolish[.]" (Ex. 38, emphasis added.) Brodkin's December 29, 2021, statement was made in response to a post made by @ForBetterSci in support of Cassava Sciences. The original post criticized a Citizen's Petition submitted against Cassava, calling the petition baseless and written by "a lawyer working for someone invested in a competitor [of Cassava]." (*Id.*)

306. Statement 33 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. The phrase "lies" was reasonably understood to mean that Cassava's made untrue statements about simufilam with the intent to deceive. Individuals reading Statement 33 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud that lied to people.

307. Statement 33 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real

testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

308. Defendant Brodkin did not present Statement 33 as pure opinion. Individuals reading Statement 33 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 33 with any context that would allow them to make an independent assessment of Statement 33 and, therefore, he intended readers of Statement 33 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

309. Defendant Brodkin acted with actual malice when publishing Statement 33. At the time he published Statement 33, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

310. **Statement 34.** On December 30, 2021, Brodkin posted the following statement on his "X" account: "$sava is a ***fraudulent company*** cultivating a malicious mob through social media[.]" (Ex. 39, emphasis added.)

311. Statement 34 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraudulent company" was reasonably understood to mean that Cassava intentionally

deceived others and lied about its activities and products. Individuals reading Statement 34 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it was nothing more than a fraudulent company.

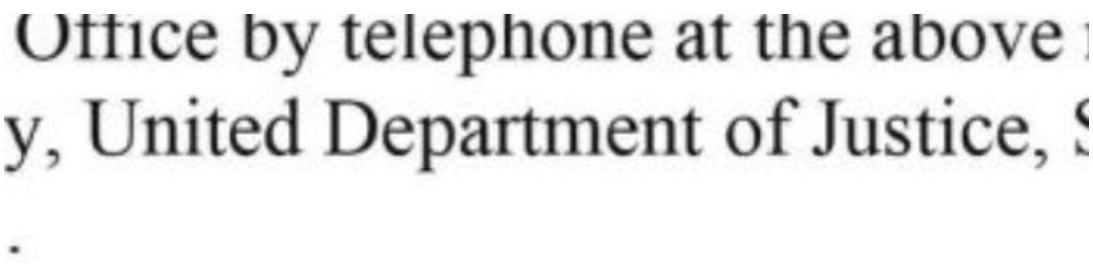
312. Statement 34 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

313. Defendant Brodkin did not present Statement 34 as pure opinion. Individuals reading Statement 34 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 34 with any context that would allow them to make an independent assessment of Statement 34 and, therefore, he intended readers of Statement 34 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

314. Defendant Brodkin acted with actual malice when publishing Statement 34. At the time he published Statement 34, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

**Statement 35.** On January 3, 2022, Heilbut posted the following statement on his "X" account: "Not content with ***fabricating scientific data***, the $SAVA bulls are now ***fabricating correspondence from the DOJ for a pump***." (Ex. 40, emphases added.) Heilbut's January 3, 2022, statement was made in response to a letter shared by Cassava investors discussing a Department of Justice probe into short sellers. Heilbut included a screenshot of the letter that reads, "United Department of Justice," an apparent typographic error of the United States Department of Justice.


Office by telephone at the above
y, United Department of Justice,

(Ex. 40.)

315. Statement 35 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying to inflate its stock price. The phrase "fabricated scientific data" was reasonably understood to mean that the data presented by Cassava was manipulated to deceive people. The phrase "pump" was reasonably understood to mean that Cassava's management was lying to increase the company's stock price. Individuals reading Statement 35 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam and lied about the DOJ communication.

316. Statement 35 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research

of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam or the DOJ. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

317. Defendant Heilbut did not present Statement 35 as pure opinion. Individuals reading Statement 35 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 35 with any context that would allow them to make an independent assessment of Statement 35 and, therefore, he intended readers of Statement 35 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

318. Defendant Heilbut acted with actual malice when publishing Statement 35. At the time he published Statement 35, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

319. **Statement 36.** On January 5, 2022, Brodkin posted the following statement on his "X" account: "Second step is to ***root out the frauds*** that are already in the market $sava[.]" (Ex. 41, emphasis added.) Brodkin's January 5, 2022, statement was made in response to a post asserting that, to restore the market's trust in biotech, the first necessary step is to stop "IPOing" companies that are years away from meaningful clinical trials. (Ex. 41.)

320. Statement 36 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 36 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud.

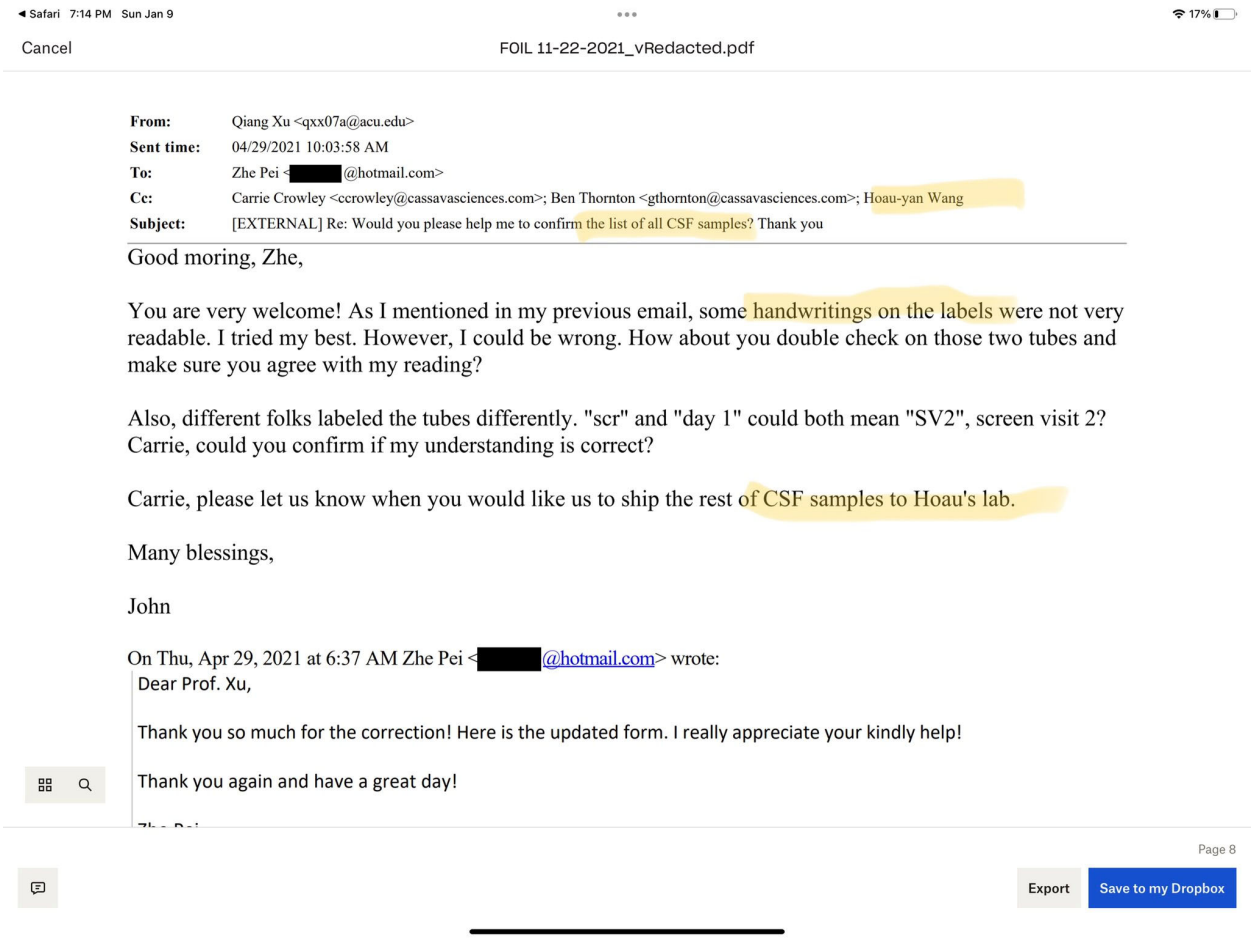
321. Statement 36 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

322. Defendant Brodkin did not present Statement 36 as pure opinion. Individuals reading Statement 36 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 36 with any context that would allow them to make an independent assessment of Statement 36 and, therefore, he intended readers of Statement 36 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

323. Defendant Brodkin acted with actual malice when publishing Statement 36. At the time he published Statement 36, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

324. **Statement 37.** On January 9, 2022, Brodkin posted the following statement on his "X" account: It is exactly that. "Here is the proof. ***$sava has lied to the public, CTAD, SEC*** and now, apparently, you in private communications[.]" (Ex. 42, emphasis added.)Brodkin also posted the following image:


◂ Safari 7:14 PM Sun Jan 9 17%

Cancel FOIL 11-22-2021_vRedacted.pdf

**From:** Qiang Xu <qxx07a@acu.edu>
**Sent time:** 04/29/2021 10:03:58 AM
**To:** Zhe Pei <[redacted]@hotmail.com>
**Cc:** Carrie Crowley <ccrowley@cassavasciences.com>; Ben Thornton <gthornton@cassavasciences.com>; Hoau-yan Wang
**Subject:** [EXTERNAL] Re: Would you please help me to confirm the list of all CSF samples? Thank you

Good moring, Zhe,

You are very welcome! As I mentioned in my previous email, some handwritings on the labels were not very readable. I tried my best. However, I could be wrong. How about you double check on those two tubes and make sure you agree with my reading?

Also, different folks labeled the tubes differently. "scr" and "day 1" could both mean "SV2", screen visit 2? Carrie, could you confirm if my understanding is correct?

Carrie, please let us know when you would like us to ship the rest of CSF samples to Hoau's lab.

Many blessings,

John

On Thu, Apr 29, 2021 at 6:37 AM Zhe Pei <[redacted]@hotmail.com> wrote:

Dear Prof. Xu,

Thank you so much for the correction! Here is the updated form. I really appreciate your kindly help!

Thank you again and have a great day!

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Export Save to my Dropbox

(*Id.*)

Brodkin's January 9, 2022, statement was made in response to a thread begun by Matt Nachtrab (@MattNachtrab). Nachtrab encouraged short sellers to "come clean" and admit that they were distorting facts about Cassava. (*Id.*)

325. Statement 37 implies that Cassava engaged in fraudulent and illegal activity by lying to federal agencies and others. The phrase "lied" was reasonably understood to mean that Cassava's made untrue statements about simufilam with the intent to deceive. Individuals reading Statement 37 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because the company lied to federal agencies and others.

326. Statement 37 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

327. Defendant Brodkin did not present Statement 37 as pure opinion. Individuals reading Statement 37 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 37 with any context that would allow them to make an independent assessment of Statement 37 and, therefore, he intended readers of Statement 37 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

328. Defendant Brodkin acted with actual malice when publishing Statement 37. At the time he published Statement 37, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there

were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

329. **Statement 38.** On January 10, 2022, Heilbut posted the following statement on his "X" account: "That is not the point here. The point is simply that there is evidence in black and white that SAVA/ Wang ***photoshopped images*** that they sent to JNeuro as 'originals', and then ***pumped the stock*** based on their 'erratum'[.]" (Ex. 43, emphases added.)

330. Statement 38 implies that Cassava engaged in fraudulent and illegal activity by, among other things, using fabricated test results. The term "photoshopped" was reasonably understood to mean that Cassava's studies for simufilam had been altered, which means they were fabricated. The phrase "pumped the stock" was reasonably understood to mean that Cassava's management was lying to increase the company's stock price. Individuals reading Statement 38 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because he said its images were photoshopped to artificially inflate the company's stock price.

331. Statement 38 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of altering the test results through photoshopping. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any

material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

332. Defendant Heilbut did not present Statement 38 as pure opinion. Individuals reading Statement 38 reasonably understood that Heilbut was conveying factual information about Cassava and its studies for simufilam. Heilbut did not provide readers of Statement 38 with any context that would allow them to make an independent assessment of Statement 38 and, therefore, he intended readers of Statement 38 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

333. Defendant Heilbut acted with actual malice when publishing Statement 38. At the time he published Statement 38, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

334. **Statement 39.** On January 12, 2022, Brodkin posted the following statement on his "X" account: "I like this $sava ***manipulated image*** in response to accusations of $sava ***manipulating images*** [] h/t Bik[.]" (Ex. 44, emphases added.) Brodkin's January 12, 2022, statement was made in response to a thread of posts discussing Cassava's scientific data and price on the stock market. Brodkin gives a "hat tip" ("h/t") to Elizabeth Bik, who discusses scientific forensics and manipulation. (*Id.*)

335. Statement 39 implies that Cassava engaged in fraudulent and illegal activity by, among other things, manipulating test results. The phrases "manipulated images" and "manipulating images" were reasonably understood to mean that Cassava changed the images from their original state to suit its purpose. Individuals reading Statement 39 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it changed images associated with the testing of simufilam from their original state to deceive people.

336. Statement 39 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not manipulated images of its testing of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

337. Defendant Brodkin did not present Statement 39 as pure opinion. Individuals reading Statement 39 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin's statement could be read in the context of Ms. Bik's statement, but he told readers that her observation was due to manipulation of the image as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 39 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

338. Defendant Brodkin acted with actual malice when publishing Statement 39. At the time he published Statement 39, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew

that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

339. **Statement 40.** On January 20, 2022, Heilbut posted the following statement on his "X" account: "$SAVA science is a ***total fraud*** and those relating hopeful anecdotes about patients currently in the clinical trials are either fools or shills." (Ex. 45, emphasis added.) Heilbut's January 19, 2022, statement was made in response to a post stating that the authors of an article about calcium-dependent cytosolic phospholipase A2 activation agreed to retract their paper because of validation concerns with one figure in the paper. (*Id.*) Dr. Shaowei Wang was the lead author of this paper. The paper was not related to simufilam.

340. Statement 40 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 40 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud and made the reference in connection with an article about "validation concerns" involving another drug.

341. Statement 40 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

342. Defendant Heilbut did not present Statement 40 as pure opinion. Individuals reading Statement 40 reasonably understood that Heilbut was conveying factual information about Cassava. Heilbut did not provide readers of Statement 40 with any context that would allow them to make an independent assessment of Statement 40 and, therefore, he intended readers of Statement 40 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

343. Defendant Heilbut acted with actual malice when publishing Statement 40. At the time he published Statement 40, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

344. **Statement 41.** On January 20, 2022, Brodkin posted the following statement on his "X" account: "icymi MOAR ***$sava fraud*** news. A clean paper retraction by a group that was unfortunate enough to collaborate with Dr Wang[.]" (Ex. 46, emphasis added.) Brodkin's January 20, 2022, statement was made in response to *Molecular Neurodegeneration* publishing a notice of retraction for a paper about calcium-dependent cytosolic phospholipase A2 activation authored by a group of researchers. Dr. Shaowei Wang was the lead author on this paper. The paper was not related to simufilam. However, after repeating the blot in question in a different lab, the paper was republished with the same title and conclusions in June 2022, exonerating Dr. Wang.

345. Statement 41 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 41 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud and made the reference in connection with an article about a "retraction" involving another drug.

346. Statement 41 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

347. Defendant Brodkin did not present Statement 41 as pure opinion. Individuals reading Statement 41 reasonably understood that Brodkin was conveying factual information about Cassava. Brodkin did not provide readers of Statement 41 with any context that would allow them to make an independent assessment of Statement 41 and, therefore, he intended readers of Statement 41 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

348. Defendant Brodkin acted with actual malice when publishing Statement 41. At the time he published Statement 41, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew

that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

349. **Statement 42.** On January 20, 2022, Brodkin posted the following statement on his "X" account: "spelled out pretty clearly here, Wang attempted to clear himself ***of image manipulation*** accusations by producing ***manipulated images AGAIN*** (cc @JuanLerma1 @MarinaP63) ***$sava***[.]" (Ex. 47, emphases added.) Brodkin's January 20, 2022, statement was made in response to an unconfirmed Twitter post from Alexander Trevelyan (@ClicksAndHisses) stating that Molecular Neurodegeneration refused to accept "manipulated" Western blots from Dr. Wang. (*Id.*)

350. Statement 42 implies that Cassava engaged in fraudulent and illegal activity by, among other things, manipulating test results. The phrases "image manipulation" and "manipulated images" were reasonably understood to mean that Cassava changed the images from their original state to suit its purpose. Individuals reading Statement 42 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it changed images associated with the testing of simufilam from their original state to deceive people.

351. Statement 42 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not manipulated images of its testing of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

352. Defendant Brodkin did not present Statement 42 as pure opinion. Individuals reading Statement 42 reasonably understood that Brodkin was conveying factual information about

simufilam. Brodkin's statement could be read in the context of Ms. Bik's statement but he told readers that her observation was due to manipulation of the image as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 42 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

353. Defendant Brodkin acted with actual malice when publishing Statement 42. At the time he published Statement 42, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

354. **Statement 43.** On February 10, 2022, Heilbut posted the following statement on his "X" account: "***$SAVA remains a complete scientific fraud*** that is going to have its rug pulled any day, and Mr. Market knows it." (Ex. 48, emphasis added.) Heilbut's February 10, 2022, statement was made in response to a post referencing an FDA warning letter unrelated to simufilam. (Ex. 48.)

355. Statement 43 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 43 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because he referred

to the company as a fraud in connection with an FDA warning letter that had nothing to do with simufilam.

356. Statement 43 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

357. Defendant Heilbut did not present Statement 43 as pure opinion. Individuals reading Statement 43 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 43 with any context that would allow them to make an independent assessment of Statement 43 and, therefore, he intended readers of Statement 43 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

358. Defendant Heilbut acted with actual malice when publishing Statement 43. At the time he published Statement 43, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

359. **Statement 44.** On March 4, 2022, Heilbut posted the following statement on his "X" account: "Meanwhile, NIH @NIHAging happily funds completely ***fraudulent science from $SAVA***." (Ex. 49, emphasis added.) Heilbut's March 3, 2022, statement was made in response to a post discussing formatting requirements for grants to be accepted by the National Institute of Health. (Ex. 49.)

360. Statement 44 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraudulent science" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 44 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud in connection with an FDA warning letter that had nothing to do with simufilam.

361. Statement 44 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

362. Defendant Heilbut did not present Statement 44 as pure opinion. Individuals reading Statement 44 reasonably understood that Heilbut was conveying factual information about simufilam. Heilbut did not provide readers of Statement 44 with any context that would allow them to make an independent assessment of Statement 44 and, therefore, he intended readers of Statement 44 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

363. Defendant Heilbut acted with actual malice when publishing Statement 44. At the time he published Statement 44, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

364. **Statement 45.** On April 28, 2022, Brodkin posted the following statement on his "X" account: "My dude, ***$sava is a scamCo***, don't tell your followers to buy ***frauds***[.]" (Ex. 50, emphases added.) Brodkin's April 28, 2022, statement was made in response to a post stating that Cassava's stock could rise over $21.50. (*Id.*)

365. Statement 45 implies that Cassava engaged in fraudulent and illegal activity. The phrase "scam" was reasonably understood to mean that Cassava was presenting an image to people about itself and its drug that was clearly false. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 45 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud.

366. Statement 45 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real

testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

367. Defendant Brodkin did not present Statement 45 as pure opinion. Individuals reading Statement 45 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 45 with any context that would allow them to make an independent assessment of Statement 45 and, therefore, he intended readers of Statement 45 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

368. Defendant Brodkin acted with actual malice when publishing Statement 45. At the time he published Statement 45, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

369. **Statement 46.** On May 9, 2022, Brodkin posted the following statement on his "X" account: "$sava now ***poster-boy for fraud***… congrats Remi 👏👏👏[.]" (Ex. 51, emphasis added.) He also posted the below screenshot:

The market for a drug that can modify the course of Alzheimer's disease is enormous. This opportunity has spurred innovation as well as the potential for fraudulent science and deceptive advertising and marketing. As an example, Pain Therapeutics, an Austin-based biotech company that had failed to gain FDA approval for Remoxy, an opioid painkiller, rebranded itself as Cassava Sciences and began working in the Alzheimer's disease drug development space. It received approximately $20 million in peer-reviewed grants from the NIH and boasts several peer-reviewed publications.

The company claimed that its Alzheimer's drug, simufilam, could actually "renew cognitive function" and made plans for large-scale Phase 3 clinical trials pitting the drug against placebo.

Cassava attracted large amounts of money from investors and for a while its stock soared, giving it a market value of $5 billion. However, based initially on a citizen petition to the FDA that asserted that much of the science behind the development of this drug was fraudulent and based on data manipulation and poor peer review, Cassava Sciences is now being investigated by several federal agencies including the Securities and Exchange Commission and the NIH.

(*Id.*)

Brodkin's May 9, 2022 statement was made in response to his own post from that same date, stating "$sava is a perfect example of what cannot be tolerated (***fraud***) in biomedical research. https://statnews.com/2022/05/05/exploitation-in-the-name-of-biomedical-innovation-cannot-be-tolerated/." (*Id.*)

370. Statement 46 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 46 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud.

371. Statement 46 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real

testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

372. Defendant Brodkin did not present Statement 46 as pure opinion. Individuals reading Statement 46 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 46 with any context that would allow them to make an independent assessment of Statement 46 and, therefore, he intended readers of Statement 46 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

373. Defendant Brodkin acted with actual malice when publishing Statement 46. At the time he published Statement 46, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

374. **Statement 47.** Also on May 9, 2022, Brodkin posted the following statement on his "X" account: "@Adrian_H giving CUNY notice that we will not allow a cover-up of $***sava Wang's scientific fraud***. All investigation findings should be made public ASAP." (Ex. 52, emphasis added.) This post was made to draw attention to a letter sent to CUNY by Heilbut, accusing Cassava of fraud.

375. Statement 47 implies that Cassava engaged in fraudulent and illegal activity. The phrase "scientific fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 47 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud.

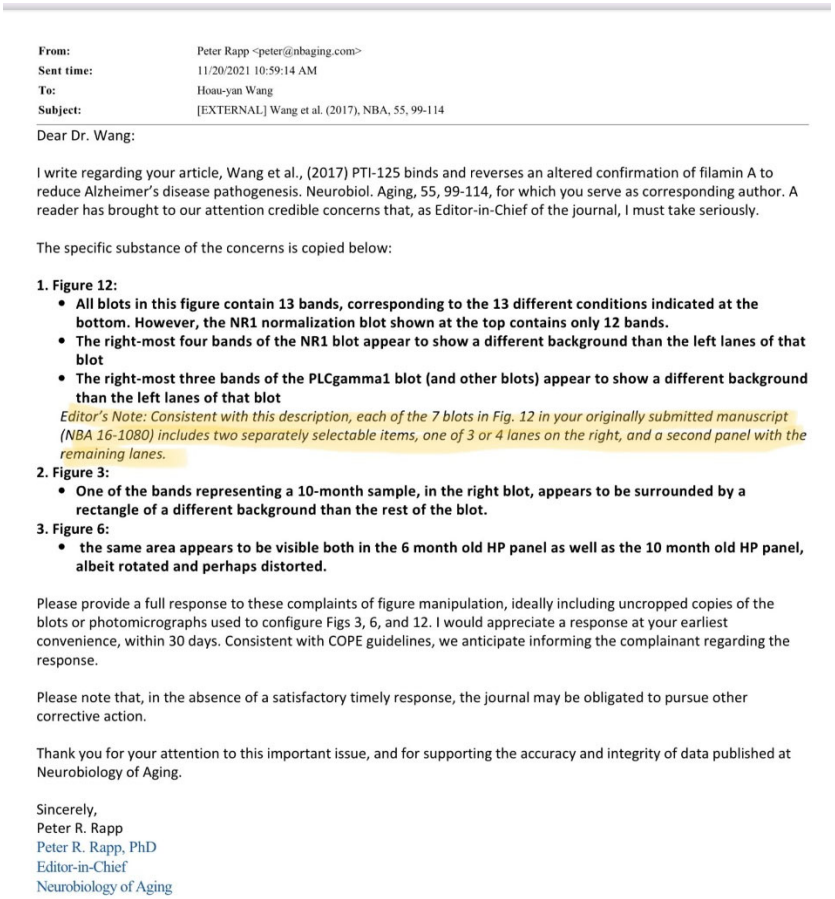
376. Statement 47 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

377. Defendant Brodkin did not present Statement 47 as pure opinion. Individuals reading Statement 47 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin did not provide readers of Statement 47 with any context that would allow them to make an independent assessment of Statement 47 and, therefore, he intended readers of Statement 47 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

378. Defendant Brodkin acted with actual malice when publishing Statement 47. At the time he published Statement 47, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

379. **Statement 48.** On May 18, 2022, Brodkin posted the following statement on his "X" account: "Who cares? The image was 'selectable'. Case closed (again) ***$sava is a fraud***." (Ex. 53, emphasis added.) Brodkin's May 18, 2022 statement was made as part of a chain of posts originating on May 12, 2022. On May 12, 2022, Brodkin posted "Even little-ole Pete at Neurobiology of Aging could find the fraud in $sava Wang's papers. But somehow couldn't find it within himself to call it intentional😡 14 erroneous select-copy-pastes on one figure and they were all 'accidental' 🙄[.]" (*Id.*) He accompanied this post with the following screenshot:



**From:** Peter Rapp <peter@nbaging.com>
**Sent time:** 11/20/2021 10:59:14 AM
**To:** Hoau-yan Wang
**Subject:** [EXTERNAL] Wang et al. (2017), NBA, 55, 99-114

Dear Dr. Wang:

I write regarding your article, Wang et al., (2017) PTI-125 binds and reverses an altered confirmation of filamin A to reduce Alzheimer's disease pathogenesis. Neurobiol. Aging, 55, 99-114, for which you serve as corresponding author. A reader has brought to our attention credible concerns that, as Editor-in-Chief of the journal, I must take seriously.

The specific substance of the concerns is copied below:

**1. Figure 12:**
- **All blots in this figure contain 13 bands, corresponding to the 13 different conditions indicated at the bottom. However, the NR1 normalization blot shown at the top contains only 12 bands.**
- **The right-most four bands of the NR1 blot appear to show a different background than the left lanes of that blot**
- **The right-most three bands of the PLCgamma1 blot (and other blots) appear to show a different background than the left lanes of that blot**

*Editor's Note: Consistent with this description, each of the 7 blots in Fig. 12 in your originally submitted manuscript (NBA 16-1080) includes two separately selectable items, one of 3 or 4 lanes on the right, and a second panel with the remaining lanes.*

**2. Figure 3:**
- **One of the bands representing a 10-month sample, in the right blot, appears to be surrounded by a rectangle of a different background than the rest of the blot.**

**3. Figure 6:**
- **the same area appears to be visible both in the 6 month old HP panel as well as the 10 month old HP panel, albeit rotated and perhaps distorted.**

Please provide a full response to these complaints of figure manipulation, ideally including uncropped copies of the blots or photomicrographs used to configure Figs 3, 6, and 12. I would appreciate a response at your earliest convenience, within 30 days. Consistent with COPE guidelines, we anticipate informing the complainant regarding the response.

Please note that, in the absence of a satisfactory timely response, the journal may be obligated to pursue other corrective action.

Thank you for your attention to this important issue, and for supporting the accuracy and integrity of data published at Neurobiology of Aging.

Sincerely,
Peter R. Rapp
Peter R. Rapp, PhD
Editor-in-Chief
Neurobiology of Aging

(*Id.*)

380. Statement 48 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 48 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as a fraud.

381. Statement 48 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

382. Defendant Brodkin did not present Statement 48 as pure opinion. Individuals reading Statement 48 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin's statement could be read in the context of the earlier posted email but he told readers that the email was due to fraud as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 48 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

383. Defendant Brodkin acted with actual malice when publishing Statement 48. At the time he published Statement 48, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

384. **Statement 49.** On May 31, 2022, Brodkin posted the following statement on his "X" account: "Big SAVA news!!! new SEC filing? Nope. New PR from company? Nope…. Another ***pump-and-dump on nothing from a ScamCo***? Yes 😒[.]" (Ex. 54, emphasis added.) Statement 49 was a standalone post without additional context provided by Brodkin or anyone else.

385. Statement 49 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "pump-and-dump" was reasonably understood to mean that Cassava's management was lying about simufilam to increase the company's stock price before they sold stock. The phrase "scam" was reasonably understood to mean that Cassava was presenting an image to people about itself and its drug that was clearly false. Individuals reading Statement 49 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam to artificially increase its stock price.

386. Statement 49 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

387. Defendant Brodkin did not present Statement 49 as pure opinion. Individuals reading Statement 49 reasonably understood that Brodkin was conveying factual information about

Cassava and its management. Brodkin did not provide readers of Statement 49 with any context that would allow them to make an independent assessment of Statement 49 and, therefore, he intended readers of Statement 49 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

388. Defendant Brodkin acted with actual malice when publishing Statement 49. At the time he published Statement 49, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, he knew that the results of testing on simufilam had been positive, and he knew there was no evidence that Cassava's management had sold stock in Cassava. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

389. **Statement 50.** On June 3, 2022, Heilbut posted the following statement on his "X" account: "what does 'returning the homeostasis of FLNA levels' even mean when the molecule does not even bind to its supposed target? [] ***IT IS ALL MADE UP***. (Including Bordey's claims about effects of Simuflimflam in their epilepsy model)[.]" (Ex. 55, emphasis added.) Heilbut's June 3, 2022 statement was made in response to a post by Arthur Singer (@sing3r) stating that "Returning the homeostasis of FLNA levels may well interfere with various disease processes. Simufilam has the potential to achieve this as demonstrated in Bordey's work at Yale. The claimed altered conformations of FLNA and femtomolar affinity are NOT required elements." (*Id.*)

390. Statement 50 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "made up" was reasonably understood

to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 50 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

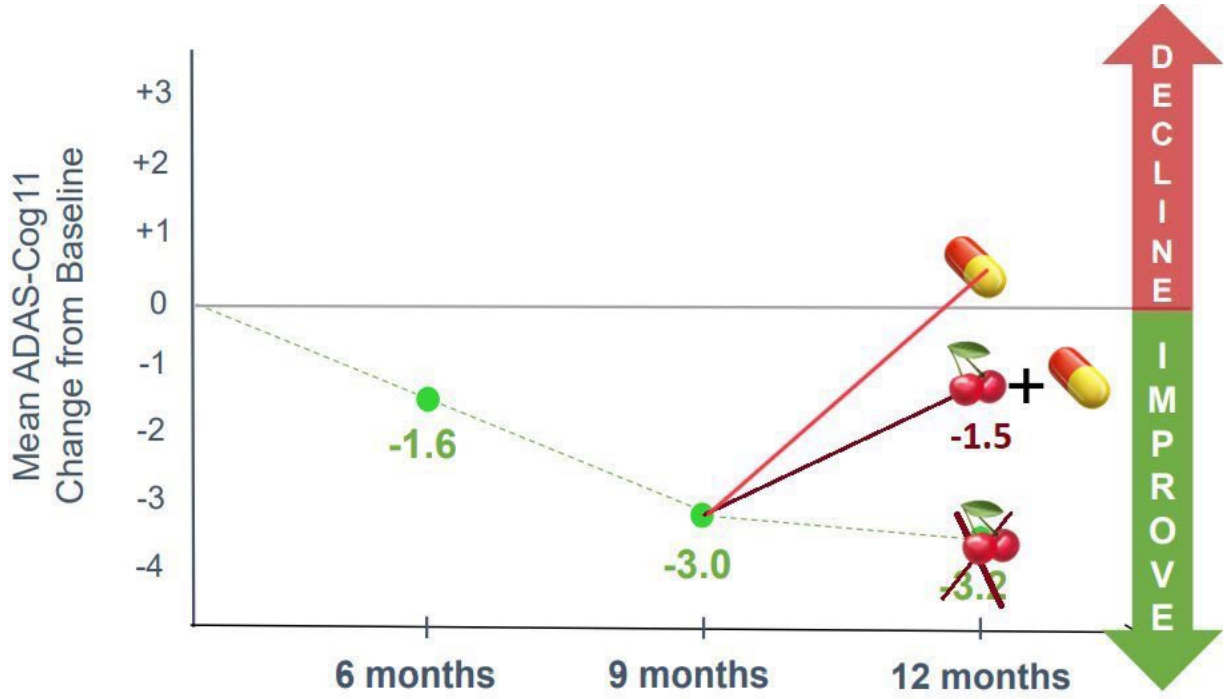
391. Statement 50 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

392. Defendant Heilbut did not present Statement 50 as pure opinion. Individuals reading Statement 50 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 50 with any context that would allow them to make an independent assessment of Statement 50 and, therefore, he intended readers of Statement 50 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

393. Defendant Heilbut acted with actual malice when publishing Statement 50. At the time he published Statement 50, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

394. **Statement 51.** On August 28, 2022, Brodkin posted the following statement on his "X" account: "Here's another straight-up admission of ***data manipulation***; first and second cohort (pills vs cherries) of patients are statistically significantly different for no reason other than an investigation of ***data manipulation*** was started between the cohort readouts $sava." (Ex. 56, emphases added.) He accompanied this post with the following screenshot:




(*Id.*)

Brodkin's August 28 post was made in response to a post from X user "Nemo_is_NoOne," who stated "$SAVA For those who would like to make sense of the recent insider purchases, let's read some history." (*Id.*) Nemo_is_NoOne included a link to a 2002 New York Times article about Enron.

395. Statement 51 implies that Cassava engaged in fraudulent and illegal activity by, among other things, manipulating test results. The phrase "data manipulation" was reasonably understood to mean that Cassava changed the data from their original state to suit its purpose. Individuals reading Statement 51 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it changed data associated with the testing of simufilam from their original state to deceive people.

396. Statement 51 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not manipulated images of its testing of simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

397. Defendant Brodkin did not present Statement 51 as pure opinion. Individuals reading Statement 51 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin's statement could be read in the context of the imaged chart (which he altered) but he told readers that changes were due to manipulation as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 51 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

398. Defendant Brodkin acted with actual malice when publishing Statement 51. At the time he published Statement 51, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

399. **Statement 52.** On August 28, 2022 Brodkin posted the following statement on his "X" account: "I don't know what the expiration data on this dumb attempt at a ***pump based on a total lie*** is, but at 1+ years I think we can safely say Remi was ***FOS when he pumped a 'deal'*** @sava[.]" (Ex. 57, emphases added.) Brodkin's post also contained the following screenshot:


(Ex. 57.)

400. Statement 52 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrases "pump" and "pumped" were reasonably understood to mean that Cassava's management was lying about simufilam to increase the company's stock price. The acronym "FOS" stands for "full of shit" and was reasonably

understood to mean that Cassava was not providing accurate information about the company and its drug. Individuals reading Statement 52 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it lied about simufilam to artificially increase its stock price.

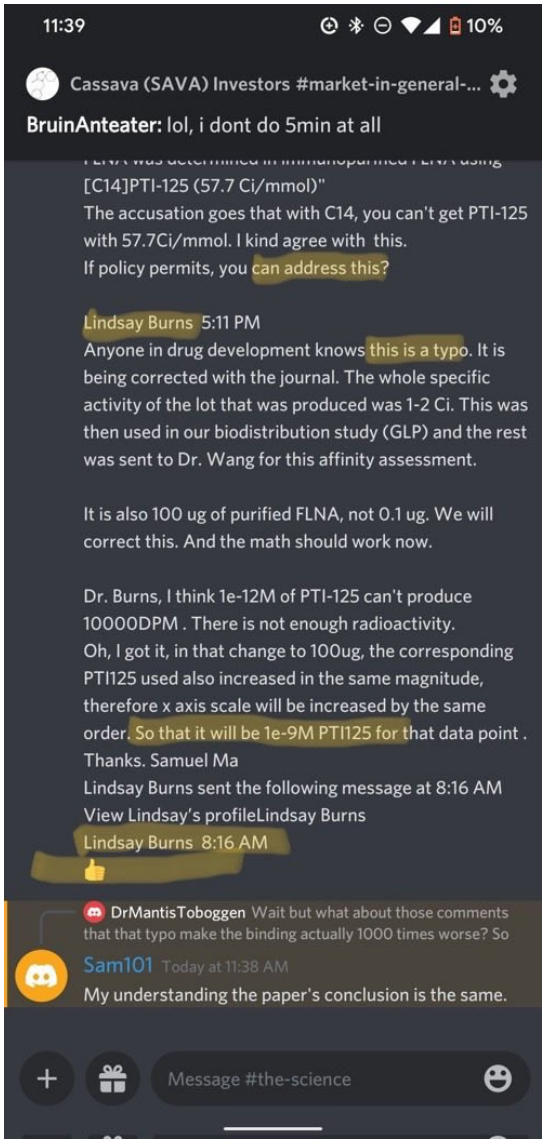
401. Statement 52 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

402. Defendant Brodkin did not present Statement 52 as pure opinion. Individuals reading Statement 52 reasonably understood that Brodkin was conveying factual information about Cassava and its management. Brodkin did not provide readers of Statement 52 with any context that would allow them to make an independent assessment of Statement 52 and, therefore, he intended readers of Statement 52 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

403. Defendant Brodkin acted with actual malice when publishing Statement 52. At the time he published Statement 52, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

404. **Statement 53.** On August 28, 2022 Brodkin posted the following statement on his "X" account: "Apparently ***lying to pump stock*** price runs in the family. Here Mrs Barbier lies through her teeth in writing that her baloney femtomolar claim is correct and a typo will clear it all up (narrator: IT DIDN'T) $sava[.]" (Ex. 58, emphasis added.) Brodkin's post also included the following screenshot:




(*Id.*)

405. Statement 53 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "pump" was reasonably understood to mean that Cassava's management was lying about simufilam to increase the company's stock price. Individuals reading Statement 53 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it lied about simufilam to artificially increase its stock price.

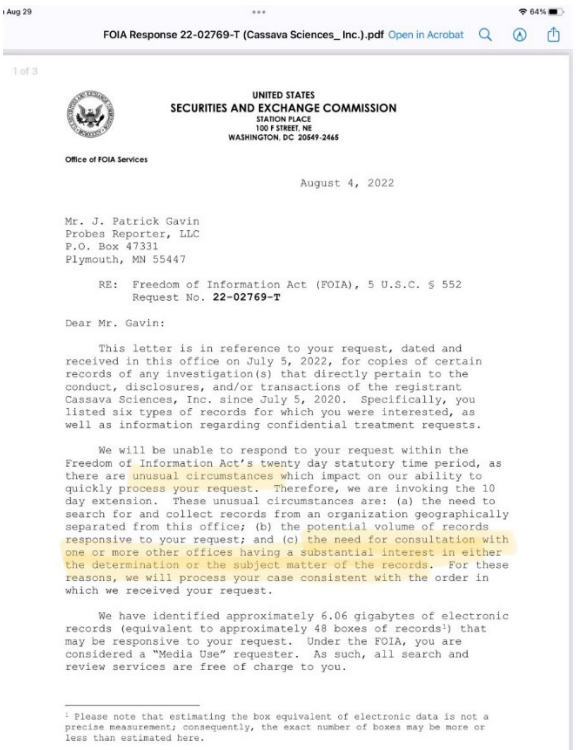
406. Statement 53 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

407. Defendant Brodkin did not present Statement 53 as pure opinion. Individuals reading Statement 53 reasonably understood that Brodkin was conveying factual information about Cassava and its management. Brodkin's statement could be read in the context of the referenced post but he told readers that Dr. Lindsay Burns (referred to as Mrs. Barbier by Brodkin) as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 53 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

408. Defendant Brodkin acted with actual malice when publishing Statement 53. At the time he published Statement 53, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-

fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

409. **Statement 54.** On August 29, 2022, Brodkin posted the following statement on his "X" account: "The ***level of fraud with $sava is way beyond just securities***, so this is probably the right move for the SEC to hand off to the DOJ, imo." (Ex. 59, emphasis added.) Brodkin's August 29, 2022 statement was made in response to his own post from that same date, stating "Yeah so about that $sava SEC investigation is 'over with no action' talking point of the Dupes. I got a copy of that response to @probesreporter and it reads to me like they are passing their evidence over to DOJ who have 'substantial interest'👍." He accompanied this post with the following image:



Aug 29 64%

FOIA Response 22-02769-T (Cassava Sciences_ Inc.).pdf Open in Acrobat

1 of 3

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
STATION PLACE
100 F STREET, NE
WASHINGTON, DC 20549-2465

Office of FOIA Services

August 4, 2022

Mr. J. Patrick Gavin
Probes Reporter, LLC
P.O. Box 47331
Plymouth, MN 55447

RE: Freedom of Information Act (FOIA), 5 U.S.C. § 552
Request No. **22-02769-T**

Dear Mr. Gavin:

This letter is in reference to your request, dated and received in this office on July 5, 2022, for copies of certain records of any investigation(s) that directly pertain to the conduct, disclosures, and/or transactions of the registrant Cassava Sciences, Inc. since July 5, 2020. Specifically, you listed six types of records for which you were interested, as well as information regarding confidential treatment requests.

We will be unable to respond to your request within the Freedom of Information Act's twenty day statutory time period, as there are unusual circumstances which impact on our ability to quickly process your request. Therefore, we are invoking the 10 day extension. These unusual circumstances are: (a) the need to search for and collect records from an organization geographically separated from this office; (b) the potential volume of records responsive to your request; and (c) the need for consultation with one or more other offices having a substantial interest in either the determination or the subject matter of the records. For these reasons, we will process your case consistent with the order in which we received your request.

We have identified approximately 6.06 gigabytes of electronic records (equivalent to approximately 48 boxes of records[1]) that may be responsive to your request. Under the FOIA, you are considered a "Media Use" requester. As such, all search and review services are free of charge to you.

[1] Please note that estimating the box equivalent of electronic data is not a precise measurement; consequently, the exact number of boxes may be more or less than estimated here.

(*Id.*)

410. Statement 54 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 54 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as engaging in fraud.

411. Statement 54 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

412. Defendant Brodkin did not present Statement 54 as pure opinion. Individuals reading Statement 54 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin's statement could be read in the context of the posted letter but he told readers that the letter was due to fraud as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 54 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

413. Defendant Brodkin acted with actual malice when publishing Statement 54. At the time he published Statement 54, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

414. **Statement 55.** On September 10, 2022, Heilbut posted the following statement on his "X" account: "***IT'S ALL MADE UP***." (Ex. 60, emphasis added.) Heilbut's September 10, 2022 statement was posted in response to a post from X user @NotFeuerstein, stating "Never forget how delusional the short sellers are [] They will try to downplay their defamatory statements in the future, but there is plenty of saved evidence out there[.]" (*Id.*)

415. Statement 55 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 55 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

416. Statement 55 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

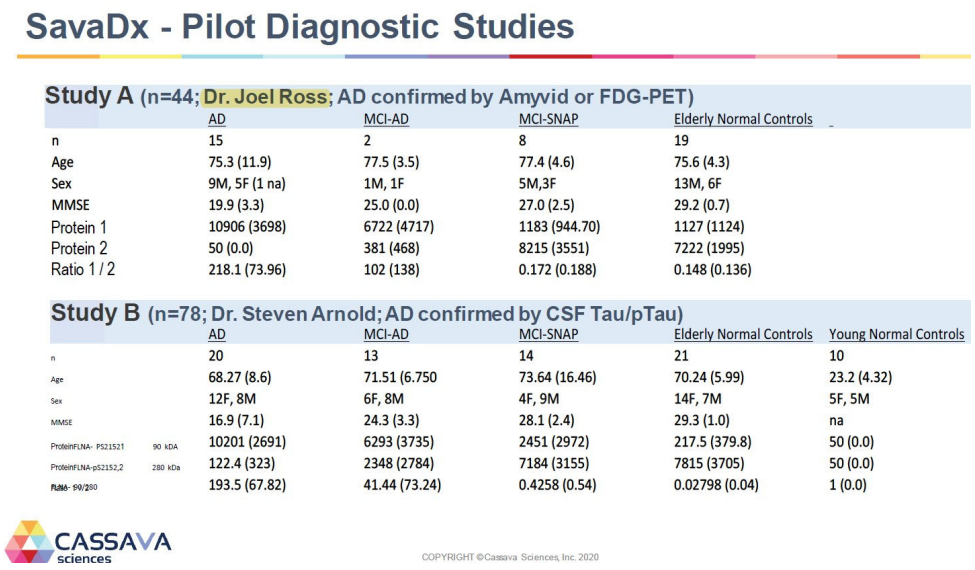
417. Defendant Heilbut did not present Statement 55 as pure opinion. Individuals reading Statement 55 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 55 with any context that would allow them to make an independent assessment of Statement 55 and, therefore, he

intended readers of Statement 55 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

418. Defendant Heilbut acted with actual malice when publishing Statement 55. At the time he published Statement 55, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

419. **Statement 56.** On September 14, 2022, Brodkin posted the following statement on his "X" account: "Oh look, it seems that SavaDX collaborator Joel Ross is an admitted crook in the ***largest insider trade in history***. ***A perfect fit for $sava*** and Steve Arnold 👍 (h/t @Russell50k)." (Ex. 61, emphasis added.) He included a link to a 2014 article from NJ.com regarding an insider trading trial. He also included the following images:

Joel Ross, a Monmouth County-based expert on Alzheimer's disease, has admitted to leaking confidential information to Mathew Martoma, a former hedge fund portfolio manager accused of rigging the biggest insider trade in history when he correctly bet on the failure of a major Alzheimer's drug treatment during clinical trials.



SavaDx - Pilot Diagnostic Studies

**Study A** (n=44; Dr. Joel Ross; AD confirmed by Amyvid or FDG-PET)

| | AD | MCI-AD | MCI-SNAP | Elderly Normal Controls |
|---|---|---|---|---|
| n | 15 | 2 | 8 | 19 |
| Age | 75.3 (11.9) | 77.5 (3.5) | 77.4 (4.6) | 75.6 (4.3) |
| Sex | 9M, 5F (1 na) | 1M, 1F | 5M,3F | 13M, 6F |
| MMSE | 19.9 (3.3) | 25.0 (0.0) | 27.0 (2.5) | 29.2 (0.7) |
| Protein 1 | 10906 (3698) | 6722 (4717) | 1183 (944.70) | 1127 (1124) |
| Protein 2 | 50 (0.0) | 381 (468) | 8215 (3551) | 7222 (1995) |
| Ratio 1 / 2 | 218.1 (73.96) | 102 (138) | 0.172 (0.188) | 0.148 (0.136) |

**Study B** (n=78; Dr. Steven Arnold; AD confirmed by CSF Tau/pTau)

| | AD | MCI-AD | MCI-SNAP | Elderly Normal Controls | Young Normal Controls |
|---|---|---|---|---|---|
| n | 20 | 13 | 14 | 21 | 10 |
| Age | 68.27 (8.6) | 71.51 (6.750 | 73.64 (16.46) | 70.24 (5.99) | 23.2 (4.32) |
| Sex | 12F, 8M | 6F, 8M | 4F, 9M | 14F, 7M | 5F, 5M |
| MMSE | 16.9 (7.1) | 24.3 (3.3) | 28.1 (2.4) | 29.3 (1.0) | na |
| ProteinFLNA- P521521 90 kDA | 10201 (2691) | 6293 (3735) | 2451 (2972) | 217.5 (379.8) | 50 (0.0) |
| ProteinFLNA-p52152,2 280 kDa | 122.4 (323) | 2348 (2784) | 7184 (3155) | 7815 (3705) | 50 (0.0) |
| [illegible] 90/280 | 193.5 (67.82) | 41.44 (73.24) | 0.4258 (0.54) | 0.02798 (0.04) | 1 (0.0) |

CASSAVA sciences



(*Id.*)

420. Statement 56 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "insider trading" was reasonably understood to mean that Cassava's management was buying/selling stock in breach of their fiduciary duty and based on material, nonpublic information about the stock. Individuals reading Statement 56 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because it was connected with an alleged insider trader.

421. Statement 56 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam to inflate its stock price or otherwise. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

422. Defendant Brodkin did not present Statement 56 as pure opinion. Individuals reading Statement 56 reasonably understood that Brodkin was conveying factual information about Cassava and its management. Brodkin did not provide readers of Statement 56 with any context that would allow them to make an independent assessment of Statement 56 and, therefore, he intended readers of Statement 56 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

423. Defendant Brodkin acted with actual malice when publishing Statement 56. At the time he published Statement 56, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, he knew that the results of testing on simufilam had been positive, and he knew there was no evidence that Cassava's management had sold stock in Cassava. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

424. **Statement 57.** On September 20, 2022, Heilbut posted the following statement on his "X" account: "$SAVA chumps getting played again, with another ***pump*** based on two week

old non non-news." (Ex. 62, emphasis added.) He then posted: "Tide has not turned. The science is ***fraudulent*** and ***the drug is fake***." (*Id.*, emphases added). He made that comment in response to a post by non-party stating: "Any chance you go Long #SAVA at some point? Seems tide has turned." (*Id.*)

425. Statement 57 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "pump" was reasonably understood to mean that Cassava's management was lying about simufilam to increase the company's stock price. The phrase "fraudulent" was reasonably understood to mean that the scientific foundation presented by Cassava for its drug was manipulated to achieve a desired outcome. The phrase "fake" was reasonably understood to mean that Cassava's drug candidate was not real or genuine. Individuals reading Statement 57 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about simufilam to artificially increase its stock price.

426. Statement 57 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

427. Defendant Heilbut did not present Statement 57 as pure opinion. Individuals reading Statement 57 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 57 with any context that would allow them to make an independent assessment of Statement 57 and, therefore, he

intended readers of Statement 57 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

428. Defendant Heilbut acted with actual malice when publishing Statement 57. At the time he published Statement 57, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

429. **Statement 58.** On September 20, 2022, Heilbut posted the following statement on his "X" account: "and FDA gets a lot of things wrong. Reality still exists. ***The drug is fake***, Wang is a fraud, and the ***$SAVA charade*** is going to come crashing down one of these days." (Ex. 63, emphases added.) He made this post in response to a post from X user JaneDoe35299512, stating "Hmmm well FDA seems to disagree w you on the drug being fake and SEC not finding anything seems pretty exculpatory, but I respect your conviction. Happy trading." (*Id.*)

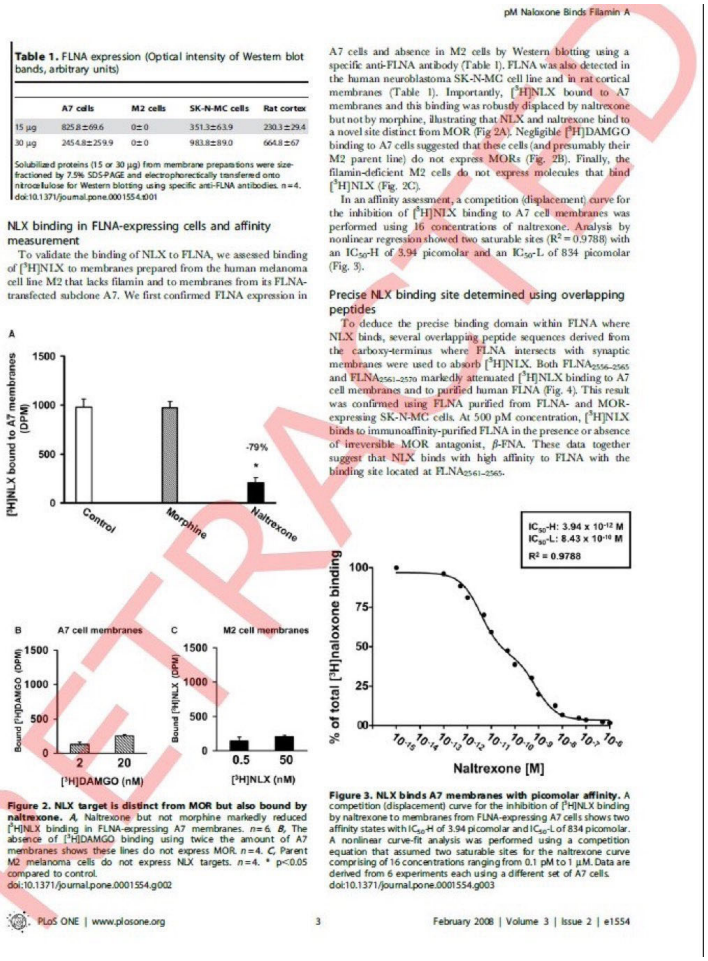
430. Statement 58 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam. The phrase "fake" was reasonably understood to mean that Cassava's drug candidate was not real or genuine. The phrase "charade" was reasonably understood to mean that Cassava was presenting an image to people about itself and its drug that was clearly false. Individuals reading Statement 58 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about simufilam.

431. Statement 58 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

432. Defendant Heilbut did not present Statement 58 as pure opinion. Individuals reading Statement 58 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 58 with any context that would allow them to make an independent assessment of Statement 58 and, therefore, he intended readers of Statement 58 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

433. Defendant Heilbut acted with actual malice when publishing Statement 58. At the time he published Statement 58, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

434. **Statement 59.** On September 22, 2022, Brodkin posted the following statement on his "X" account: "Nope, I mean ***fraud $sava***." (Ex. 64, emphasis added.) He accompanied the post with the following image:



pM Naloxone Binds Filamin A

**Table 1.** FLNA expression (Optical intensity of Western blot bands, arbitrary units)

| | A7 cells | M2 cells | SK-N-MC cells | Rat cortex |
|---|---|---|---|---|
| 15 µg | 825.8±69.6 | 0±0 | 351.3±63.9 | 230.3±29.4 |
| 30 µg | 1245.8±259.9 | 0±0 | 983.8±89.0 | 664.8±67 |

Solubilized proteins (15 or 30 µg) from membrane preparations were size-fractioned by 7.5% SDS-PAGE and electrophoretically transferred onto nitrocellulose for Western blotting using specific anti-FLNA antibodies. n = 4.
doi:10.1371/journal.pone.0001554.t001

NLX binding in FLNA-expressing cells and affinity measurement

To validate the binding of NLX to FLNA, we assessed binding of [$^3$H]NLX to membranes prepared from the human melanoma cell line M2 that lacks filamin and to membranes from its FLNA-transfected subclone A7. We first confirmed FLNA expression in A7 cells and absence in M2 cells by Western blotting using a specific anti-FLNA antibody (Table 1). FLNA was also detected in the human neuroblastoma SK-N-MC cell line and in rat cortical membranes (Table 1). Importantly, [$^3$H]NLX bound to A7 membranes and this binding was robustly displaced by naltrexone but not by morphine, illustrating that NLX and naltrexone bind to a novel site distinct from MOR (Fig 2A). Negligible [$^3$H]DAMGO binding to A7 cells suggested that these cells (and presumably their M2 parent line) do not express MORs (Fig. 2B). Finally, the filamin-deficient M2 cells do not express molecules that bind [$^3$H]NLX (Fig. 2C).

In an affinity assessment, a competition (displacement) curve for the inhibition of [$^3$H]NLX binding to A7 cell membranes was performed using 16 concentrations of naltrexone. Analysis by nonlinear regression showed two saturable sites ($R^2$ = 0.9788) with an $IC_{50}$-H of 3.94 picomolar and an $IC_{50}$-L of 834 picomolar (Fig. 3).

Precise NLX binding site determined using overlapping peptides

To deduce the precise binding domain within FLNA where NLX binds, several overlapping peptide sequences derived from the carboxy-terminus where FLNA intersects with synaptic membranes were used to absorb [$^3$H]NLX. Both $FLNA_{2556–2565}$ and $FLNA_{2561–2570}$ markedly attenuated [$^3$H]NLX binding to A7 cell membranes and to purified human FLNA (Fig. 4). This result was confirmed using FLNA purified from FLNA- and MOR-expressing SK-N-MC cells. At 500 pM concentration, [$^3$H]NLX binds to immunoaffinity-purified FLNA in the presence or absence of irreversible MOR antagonist, β-FNA. These data together suggest that NLX binds with high affinity to FLNA with the binding site located at $FLNA_{2561–2565}$.



**Figure 2. NLX target is distinct from MOR but also bound by naltrexone.** *A*, Naltrexone but not morphine markedly reduced [$^3$H]NLX binding in FLNA-expressing A7 membranes. *n* = 6. *B*, The absence of [$^3$H]DAMGO binding using twice the amount of A7 membranes shows these lines do not express MOR. *n* = 4. *C*, Parent M2 melanoma cells do not express NLX targets. *n* = 4. * $p<0.05$ compared to control.
doi:10.1371/journal.pone.0001554.g002



**Figure 3. NLX binds A7 membranes with picomolar affinity.** A competition (displacement) curve for the inhibition of [$^3$H]NLX binding by naltrexone to membranes from FLNA-expressing A7 cells shows two affinity states with $IC_{50}$-H of 3.94 picomolar and $IC_{50}$-L of 834 picomolar. A nonlinear curve-fit analysis was performed using a competition equation that assumed two saturable sites for the naltrexone curve comprising of 16 concentrations ranging from 0.1 pM to 1 µM. Data are derived from 6 experiments each using a different set of A7 cells.
doi:10.1371/journal.pone.0001554.g003





Brodkin made this post as a response to "X" user smogcitygiraffe. Brodkin posted a supposed summary of the "Cassava saga" and smogcitygiraffe stated it was "A good completely one-sided summary of course." (*Id.*) Brodkin responded by asking "***Does fraud have 2 sides***?" (*Id.*, emphasis added). smogcitygiraffe then stated "I'm sure you mean fraud accusations, and yes they obviously do, especially when a year lomg investigation leads to zero action on those accusations. No?" (*Id.*) Brodkin followed up with his September 22 post.

435. Statement 59 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 59 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as engaging in fraud.

436. Statement 59 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

437. Defendant Brodkin did not present Statement 59 as pure opinion. Individuals reading Statement 59 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin's statement could be read in the context of the posted image but he told readers that the "retracted stamp" was due to fraud as opposed to the non-fraudulent explanations that he knew existed. He did not share with the readers what he knew in terms of innocent explanations and, therefore, he intended readers of Statement 59 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

438. Defendant Brodkin acted with actual malice when publishing Statement 59. At the time he published Statement 59, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's

testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

439. **Statement 60.** On September 27, 2022, Heilbut posted the following statement on his "X" account: "It doesn't halt cognitive decline either, I'm afraid, because all the '***science' behind it was faked*** by a crazy ***fabulist***, and it is a completely ***imaginary drug*** that doesn't even engage its (never-validated) target." (Ex. 65, emphases added). Heilbut made this post in response to a post from "X" user MattNachtrab, who stated "The short and distort campaign on $sava is perpetrating a genocide on 250,000 Alzheimer's victims from the ~6 month they have caused to an approved @US_FDA trial. Nobody can deny Simufilam has a chance to help AD victims. The @DOJCrimDiv and @SEC are allowing this and must act!" (*Id.*)

440. Statement 60 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "faked" was reasonably understood to mean that the science supporting Cassava's drug candidate was not real or genuine. The phrase "fabulist" was reasonably understood to mean that Cassava was lying about itself and its drug that was clearly false. The phrase "imaginary drug" was reasonably understood to mean Cassava's drug was not real. Individuals reading Statement 60 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about simufilam.

441. Statement 60 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results

from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

442. Defendant Heilbut did not present Statement 60 as pure opinion. Individuals reading Statement 60 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 60 with any context that would allow them to make an independent assessment of Statement 60 and, therefore, he intended readers of Statement 60 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

443. Defendant Heilbut acted with actual malice when publishing Statement 60. At the time he published Statement 60, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

444. **Statement 61.** On October 2, 2022, Heilbut posted the following statement on his "X" account: "Be careful with this line of thinking. They HAVE been ***fabricating results***, & the justification for the Ph3 was a ***charade***. They're breaking critical scientific and ethical norms that enable human clinial research, as well as regulations. ***It's 100% made up scientific fraud***." (Ex. 66, emphases added). Heilbut made this post in response to a thread started by Matt Nachtrab (@MattNachtrab) who wrote that "[t]he short and distort campaign on $sava is perpetrating a

genocide on the 250,000 Alzheimer's victims…Nobody can deny Simufilam has a chance to help AD victims." (*Id.*)

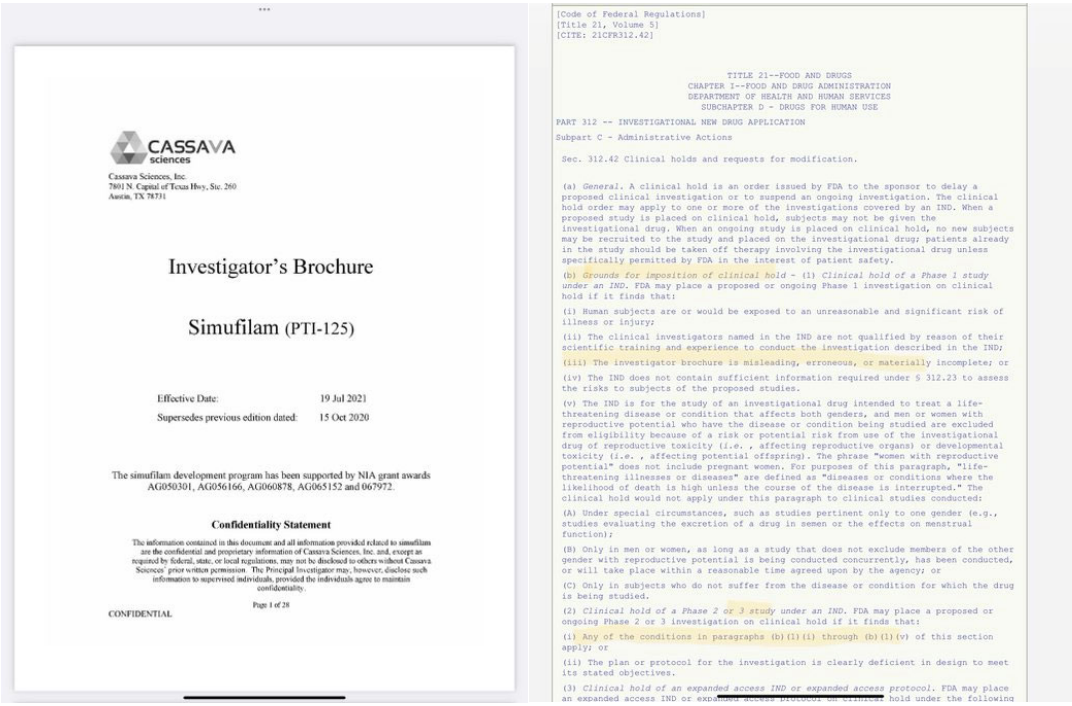
445. Statement 61 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "fabricating results" was reasonably understood to mean that Cassava manipulated the test results for its drug to deceive. The phrase "charade" was reasonably understood to mean that Cassava presented a justification for the test results that was clearly false. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 61 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it fabricated test results and lied about simufilam.

446. Statement 61 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

447. Defendant Heilbut did not present Statement 61 as pure opinion. Individuals reading Statement 61 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 61 with any context that would allow them to make an independent assessment of Statement 61 and, therefore, he intended readers of Statement 61 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

448. Defendant Heilbut acted with actual malice when publishing Statement 61. At the time he published Statement 61, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

449. **Statement 62.** On October 2, 2022, Brodkin posted the following statement on his "X" account: "For just straight-up scientific illiteracy and ***insult-to-your-intelligence fraud***, this one has got to take the top spot (and that's taken from a very rich $sava data set 😉)." (Ex. 67, emphasis added). He made this statement while reposting a March 17, 2022 post from his account stating "📎$sava news📎 We are now in possession of the P3 Investigators Brochure 🥳. Why is this news? Well, because FDA regulations state that if the IB is misleading that is grounds for a clinical hold 🙀. So let's take a look. 1/13" (*Id.*) The post included the following images:



CASSAVA sciences

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Investigator's Brochure

Simufilam (PTI-125)

Effective Date: 19 Jul 2021
Supersedes previous edition dated: 15 Oct 2020

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**Confidentiality Statement**

The information contained in this document and all information provided related to simufilam are the confidential and proprietary information of Cassava Sciences, Inc. and, except as required by federal, state, or local regulations, may not be disclosed to others without Cassava Sciences' prior written permission. The Principal Investigator may, however, disclose such information to supervised individuals, provided the individuals agree to maintain confidentiality.

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CONFIDENTIAL

[Code of Federal Regulations]
[Title 21, Volume 5]
[CITE: 21CFR312.42]

TITLE 21--FOOD AND DRUGS
CHAPTER I--FOOD AND DRUG ADMINISTRATION
DEPARTMENT OF HEALTH AND HUMAN SERVICES
SUBCHAPTER D - DRUGS FOR HUMAN USE

PART 312 -- INVESTIGATIONAL NEW DRUG APPLICATION

Subpart C - Administrative Actions

Sec. 312.42 Clinical holds and requests for modification.

(a) *General.* A clinical hold is an order issued by FDA to the sponsor to delay a proposed clinical investigation or to suspend an ongoing investigation. The clinical hold order may apply to one or more of the investigations covered by an IND. When a proposed study is placed on clinical hold, subjects may not be given the investigational drug. When an ongoing study is placed on clinical hold, no new subjects may be recruited to the study and placed on the investigational drug; patients already in the study should be taken off therapy involving the investigational drug unless specifically permitted by FDA in the interest of patient safety.

(b) *Grounds for imposition of clinical hold* - (1) *Clinical hold of a Phase 1 study under an IND.* FDA may place a proposed or ongoing Phase 1 investigation on clinical hold if it finds that:

(i) Human subjects are or would be exposed to an unreasonable and significant risk of illness or injury;

(ii) The clinical investigators named in the IND are not qualified by reason of their scientific training and experience to conduct the investigation described in the IND;

(iii) The investigator brochure is misleading, erroneous, or materially incomplete; or

(iv) The IND does not contain sufficient information required under § 312.23 to assess the risks to subjects of the proposed studies.

(v) The IND is for the study of an investigational drug intended to treat a life-threatening disease or condition that affects both genders, and men or women with reproductive potential who have the disease or condition being studied are excluded from eligibility because of a risk or potential risk from use of the investigational drug of reproductive toxicity (*i.e.* , affecting reproductive organs) or developmental toxicity (*i.e.* , affecting potential offspring). The phrase "women with reproductive potential" does not include pregnant women. For purposes of this paragraph, "life-threatening illnesses or diseases" are defined as "diseases or conditions where the likelihood of death is high unless the course of the disease is interrupted." The clinical hold would not apply under this paragraph to clinical studies conducted:

(A) Under special circumstances, such as studies pertinent only to one gender (e.g., studies evaluating the excretion of a drug in semen or the effects on menstrual function);

(B) Only in men or women, as long as a study that does not exclude members of the other gender with reproductive potential is being conducted concurrently, has been conducted, or will take place within a reasonable time agreed upon by the agency; or

(C) Only in subjects who do not suffer from the disease or condition for which the drug is being studied.

(2) *Clinical hold of a Phase 2 or 3 study under an IND.* FDA may place a proposed or ongoing Phase 2 or 3 investigation on clinical hold if it finds that:

(i) Any of the conditions in paragraphs (b)(1)(i) through (b)(1)(v) of this section apply; or

(ii) The plan or protocol for the investigation is clearly deficient in design to meet its stated objectives.

(3) *Clinical hold of an expanded access IND or expanded access protocol.* FDA may place an expanded access IND or expanded access [illegible] hold under the following

(*Id.*)

450. Statement 62 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that Cassava intentionally deceived others and lied about its activities and products. Individuals reading Statement 62 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as engaging in fraud.

451. Statement 62 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

452. Defendant Brodkin did not present Statement 62 as pure opinion. Individuals reading Statement 62 reasonably understood that Brodkin was conveying factual information about

simufilam. Brodkin's statement could be read in the context of the posted brochure, but he told readers that the brochure was indicative of fraud without providing a link to the full report and without providing an explanation for the conclusion. Therefore, he intended readers of Statement 62 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

453. Defendant Brodkin acted with actual malice when publishing Statement 62. At the time he published Statement 62, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

454. **Statement 63.** On October 6, 2022, Heilbut posted the following statement on his "X" account: "SIMUFLIMFLAM: ***IT'S ALL MADE UP***™" (Ex. 68, emphasis added). Heilbut's post appears to be in response to a post by non-party Arthur Singer who wrote: "I think there is missing puzzle piece that could help solve the dilemma you cite. Let's put a pin in that for now." (*Id.*)

455. Statement 63 implies that Cassava engaged in fraudulent and illegal activity by lying about simufilam to inflate its stock price. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 63 reasonably understood that Heilbut was implying that

Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

456. Statement 63 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

457. Defendant Heilbut did not present Statement 63 as pure opinion. Individuals reading Statement 63 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 63 with any context that would allow them to make an independent assessment of Statement 63 and, therefore, he intended readers of Statement 63 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

458. Defendant Heilbut acted with actual malice when publishing Statement 63. At the time he published Statement 63, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

459. **Statement 64.** On October 11, 2022, Brodkin posted the following statement to his "X" account: "I don't think DOJ hired EXTRA people to investigate $sava (probably hired consultants) I think Wang was in the compensation bonus pool. Whether Remi/Wang go to jail is really a question of how well they covered their tracks. ***What is not in question is that they did the crime***." (Ex. 69, emphasis added.) He posted the following image with the statement:

> The Justice Department personnel conducting the investigation into Austin, Texas-based Cassava specialize in examining whether companies or individuals have misled or defrauded investors, government agencies or consumers, according to the sources, who spoke on condition of anonymity. The sources did not provide details of the focus of the probe and whether the department was looking into any specific individuals.

Brodkin made this post in response to a post from smogcitygiraffe, who asked "Are you saying Paul is making accurate statements about the article and paying trial sites in stock options?" (*Id.*) "Paul" had previously posted, "You are right. That's why DOJ has hired experts to investigate $SAVA research misconduct, according to the Reuter report." (*Id.*)

460. Statement 64 implies that Cassava engaged in fraudulent and illegal activity. The phrase "did the crime" was reasonably understood to mean that Cassava intentionally deceived federal agencies and investors and lied about its activities and products, which constitutes a crime. Individuals reading Statement 64 reasonably understood that Brodkin was implying that Cassava engaged in fraudulent and illegal activity because he referred to the company as engaging in a crime.

461. Statement 64 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally

made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

462. Defendant Brodkin did not present Statement 64 as pure opinion. Individuals reading Statement 64 reasonably understood that Brodkin was conveying factual information about simufilam. Brodkin's statement could be read in the context of the posted excerpt, but the excerpt did not make any conclusion about actual criminal activity. Therefore, he intended readers of Statement 64 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

463. Defendant Brodkin acted with actual malice when publishing Statement 64. At the time he published Statement 64, Brodkin knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

464. **Statement 65.** On October 16, 2022, Heilbut posted the following statement on his "X" account: "Who is crazy, who is stupid, who is lying, and who is evil is not really my concern. ***The drug is fake; the research was fake; it is all a charade. IT IS ALL MADE UP***. $SAVA" (Ex. 70, emphasis added.) Heilbut posted this statement in response to a post from X user JaneDoe35299512, who stated "I don't recall $SAVA 'swearing' to anything. Science evolves.

Evil (in my book) would be $SAVA deliberately lying about the science, and I don't believe they have done that." (*Id.*) (Ex. 70.)

465. Statement 65 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "fake" was reasonably understood to mean that the science supporting Cassava's drug candidate was not real or genuine. The phrase "charade" was reasonably understood to mean that Cassava presented a justification for the test results that was clearly false. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 65 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about the test results for simufilam.

466. Statement 65 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

467. Defendant Heilbut did not present Statement 65 as pure opinion. Individuals reading Statement 65 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 65 with any context that would allow them to make an independent assessment of Statement 65 and, therefore, he intended readers of Statement 65 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

468. Defendant Heilbut acted with actual malice when publishing Statement 65. At the time he published Statement 65, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

469. **Statement 66.** On October 19, 2022, Heilbut posted the following statement on his "X" account: "***It is not a 'drug'***. ***IT IS ALL MADE UP***. The entire thing is completely, utterly, insane." (Ex. 71, emphasis added). Heilbut's October 19, 2022 statement was posted in response to a post from X user @mosquitobight stating "Jane/John et al. NO ONE is hoping a legit AD drug will fail Phase 3. Everyone wants a successful AD drug. Stop peddling this BS." (*Id.*)

470. Statement 66 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 66 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it "made up" results for simufilam, which, according to Heilbut, was not even a drug.

471. Statement 66 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research

of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

472. Defendant Heilbut did not present Statement 66 as pure opinion. Individuals reading Statement 66 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 66 with any context that would allow them to make an independent assessment of Statement 66 and, therefore, he intended readers of Statement 66 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

473. Defendant Heilbut acted with actual malice when publishing Statement 66. At the time he published Statement 66, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

474. **Statement 67.** On October 22, 2022, Heilbut posted the following statement on his "X" account: "SavaDx went off track as soon as they got anyone who wasn't Wang to try to produce data, because… wait for it... ***IT WAS ALL MADE UP*** (and utter nonsense to boot)." (Ex. 72, emphasis added). Heilbut posted this statement in response to a post from X user Russell50k, who stated "Nemo is right about Lund. They may have expected better results though. The FOIAs

and press release seem like they were surprised by the results. I'm not sure how SavaDx went off track, if it was an outside lab or not. Xu is a SavaDx collaborator at Abilene Christian U." (*Id.*)

475. Statement 67 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 67 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it "made up" results for simufilam.

476. Statement 67 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

477. Defendant Heilbut did not present Statement 67 as pure opinion. Individuals reading Statement 67 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 67 with any context that would allow them to make an independent assessment of Statement 67 and, therefore, he intended readers of Statement 67 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

478. Defendant Heilbut acted with actual malice when publishing Statement 67. At the time he published Statement 67, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-

fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

479. **Statement 68.** On October 27, 2022, Heilbut posted the following statement on his "X" account: "what you're trying to say here is that ***IT'S ALL MADE UP***[.]" (Ex. 73, emphasis added). Heilbut's October 27, 2022, statement was posted in response to a post from X user @mosquitobight stating "Jane/John et al. NO ONE is hoping a legit AD drug will fail Phase 3. Everyone wants a successful AD drug. Stop peddling this BS." (*Id.*)

480. Statement 68 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 68 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it "made up" results for simufilam.

481. Statement 68 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

482. Defendant Heilbut did not present Statement 68 as pure opinion. Individuals reading Statement 68 reasonably understood that Heilbut was conveying factual information about

Cassava and its management. Heilbut did not provide readers of Statement 68 with any context that would allow them to make an independent assessment of Statement 68 and, therefore, he intended readers of Statement 68 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

483. Defendant Heilbut acted with actual malice when publishing Statement 68. At the time he published Statement 68, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

484. **Statement 69.** On May 5, 2023, Heilbut posted the following statement on his "X" account: "As with the Bordey paper, this is actually a ***fantastic experiment*** $SAVA has done to determine just what kind of ***fantastical results*** a lab can come up with when given an ***inert compound*** targeting their pet protein[.]" (Ex. 74, emphases added). Statement 69 was posted in response to a string of posts by Heilbut discussing "A novel filamin A-binding molecule may significantly enhance SST2 antitumoral actions in GH-secreting PitNET cells." (*Id.*) This related to the University of Milan study discussed in Section IV.E above.

485. Statement 69 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results. The phrases "fantastic experiment" and "fantastical results," as well as the reference to "an inert compound," were reasonably understood to mean that the results reported

for Cassava's drug were imaginary and not real. Individuals reading Statement 69 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it was presenting imaginary results for simufilam.

486. Statement 69 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

487. Defendant Heilbut did not present Statement 69 as pure opinion. Individuals reading Statement 69 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 69 with any context that would allow them to make an independent assessment of Statement 69 and, therefore, he intended readers of Statement 69 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

488. Defendant Heilbut acted with actual malice when publishing Statement 69. At the time he published Statement 69, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, he knew that outside scientists at Yales University and the University of Milan had shown that simufilam is not "inert," and he knew that

the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

489. Moreover, Heilbut's actual malice is evidenced by the referenced study. Heilbut was aware that the University of Milan had done independent research and found results similar to those previously published by Cassava and Yale University. Yet rather than admitting that he had lied when previously saying that Cassava's science was "all made up," he doubled down and accused the University of Milan researchers as being complicit in Cassava's alleged fraud.

490. **Statement 70.** On September 19, 2023, Milioris posted the following statement on his "X" account: "Funny how the ***drug stopped working*** when Nadav left the picture[.]" (Ex. 75, emphasis added). Milioris's September 19, 2023, statement was posted in response to a post from X user @SaltTheSnail7 stating "funny how the drug suddenly stopped working when people starting observing . . ." (*Id.*)

491. Statement 70 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results. The phrase "stopped working" was reasonably understood to mean that the results previously reported for Cassava's drug were not accurate. Individuals reading Statement 70 reasonably understood that Milioris was implying that Cassava engaged in fraudulent and illegal activity because it could only report positive test results when Dr. Nadav Friedman was with the company, implying that officer and director of the company manipulated testing. Dr. Friedman died in December 2022 following a brief journey with cancer. Milioris' post was as insensitive and callous as it was inaccurate.

492. Statement 70 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research

of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

493. Defendant Milioris did not present Statement 70 as pure opinion. Individuals reading Statement 70 reasonably understood that Milioris was conveying factual information about Cassava and its management. Milioris did not provide readers of Statement 70 with any context that would allow them to make an independent assessment of Statement 70 and, therefore, he intended readers of Statement 70 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

494. Defendant Milioris acted with actual malice when publishing Statement 70. At the time he published Statement 70, Milioris knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, he was aware that the University of Milan had done independent research and found results similar to those previously published by Cassava and Yale University, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

495. **Statement 71.** On October 13, 2023, Heilbut posted the following statement on his "X" account: "Do you really think that the "dog ate my homework" is going to work here? There was no data and no record of any of the work. A reasonable inference and implication might be that the research was never actually done, or in other words, that ***IT IS ALL MADE UP***." (Ex. 76,

emphasis added). Heilbut's October 13, 2023, statement was posted in response to a post from X user @MattNachtrab stating "The only sentence that gives details on what the egregious misconduct is on the first page. The end of the report is referring to that." (*Id.*) The thread originated with a discussion about CUNY's investigation of Dr. Wang.

496. Statement 71 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "made up" was reasonably understood to mean that Cassava's studies for simufilam had been invented, which means that they were not real. Individuals reading Statement 71 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it "made up" results for simufilam.

497. Statement 71 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

498. Defendant Heilbut did not present Statement 71 as pure opinion. Individuals reading Statement 71 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 71 with any context that would allow them to make an independent assessment of Statement 71 and, therefore, he intended readers of Statement 71 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

499. Defendant Heilbut acted with actual malice when publishing Statement 71. At the time he published Statement 71, Heilbut knew he had seen no firsthand evidence showing that

Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

500. **Statement 72.** On October 13, 2023, Heilbut posted the following statement on his "X" account: "It's a totally different issue, but I can assure you that many of those outraged with $SAVA were also outraged with Aduhelm and FDA shenanigans and skeptical of amyloid Abs. But there's equivalence between that and ***allegedly completely fake science*** and an ***allegedly imaginary drug***." (Ex. 77, emphases added). Heilbut's October 13, 2023, statement was posted in response to a post from X user @DanClintonRN stating "Seems like selective outrage to only rail against $SAVA and simufilam giving Alzheimer's patients false hope when amyloid-removing antibodies are now proven not to work and proven to commonly cause serious brain damage." (*Id.*)

501. Statement 72 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "fake science" was reasonably understood to mean that the science supporting Cassava's drug candidate was not real or genuine. The phrase "imaginary drug" was reasonably understood to mean Cassava's drug was not real. Individuals reading Statement 72 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because it lied about simufilam.

502. Statement 72 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including fabrication through the use of made up or invented test results.

Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. And Cassava has not knowingly or intentionally made any material misstatements about simufilam. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

503. Defendant Heilbut did not present Statement 72 as pure opinion. Individuals reading Statement 72 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 72 with any context that would allow them to make an independent assessment of Statement 72 and, therefore, he intended readers of Statement 72 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

504. Defendant Heilbut acted with actual malice when publishing Statement 72. At the time he published Statement 72, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

505. **Statement 73.** On March 31, 2024, Heilbut posted the following statement on his "X" account: "I have multiple motives, but my primary motive is I don't like bullshit. My motives don't matter, however, because I am correct. ***Wang's fraud and misconduct has already been well established***; there is no need to politely wait for more people to be ripped off." (Ex. 78,

emphasis added). Heilbut's March 31, 2024, statement was posted in response to a post from X user @BryanMa39312867 stating "Lets simplify this. $SAVA will have data readouts in the coming months from one of the largest PH3 ALZ trials in history. []Trials fail your proven correct, trials succeed ALZ patients win. So why not just wait? What's your REAL motive for being here?" (*Id.*)

506. Statement 73 implies that Cassava engaged in fraudulent and illegal activity. The phrase "fraud" was reasonably understood to mean that one of the PhDs who published papers related to PTI-125 and its mechanism intentionally lied about the simufilam testing. Individuals reading Statement 73 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because, according to Heilbut, Dr. Wang, who was associated with Cassava by Heilbut, engaged in fraud.

507. Statement 73 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results, including any testing results by Dr. Wang. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam, including any work conducted by Dr. Wang. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

508. Defendant Heilbut did not present Statement 73 as pure opinion. Individuals reading Statement 73 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 73 with any context that would allow them to make an independent assessment of Statement 73 and, therefore, he intended readers of Statement 73 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

509. Defendant Heilbut acted with actual malice when publishing Statement 73. At the time he published Statement 73, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he knew he had seen no firsthand evidence showing that Dr. Wang fabricated test results relating to simufilam, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

510. **Statement 74.** On March 21, 2024, Heilbut posted the following statement on his "X" account: "***It doesn't work*** because all of the '***science' & justification for testing it has been fabricated or complete bullshit***, in my scientific opinion. I don't need to pretend to do a clinical trial and give grandma a spinal tap to know that for sure. [] The other accounts are not me." (Ex. 79, emphases added). Heilbut's March 21, 2024, statement was posted in response to a post from X user @BryanMa39312867 stating "Can you explain how I'm in favor of fraud exactly? [] I'm in favor of finding out if Simufilam works or not. And we will know for sure by the end of the year. Now can you switch back to your other account Adrian and answer my other questions?" (Ex. 79.)

511. Statement 74 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results and lying about simufilam. The phrase "fabricated" was reasonably understood to mean that Cassava manipulated the test results for its drug to deceive. The phrase "complete bullshit" was reasonably understood to mean that that Cassava's test results were

deceptive and not truthful. Individuals reading Statement 74 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because simufilam does not work and the previously published foundational science and testing were manipulated to deceive people about the results.

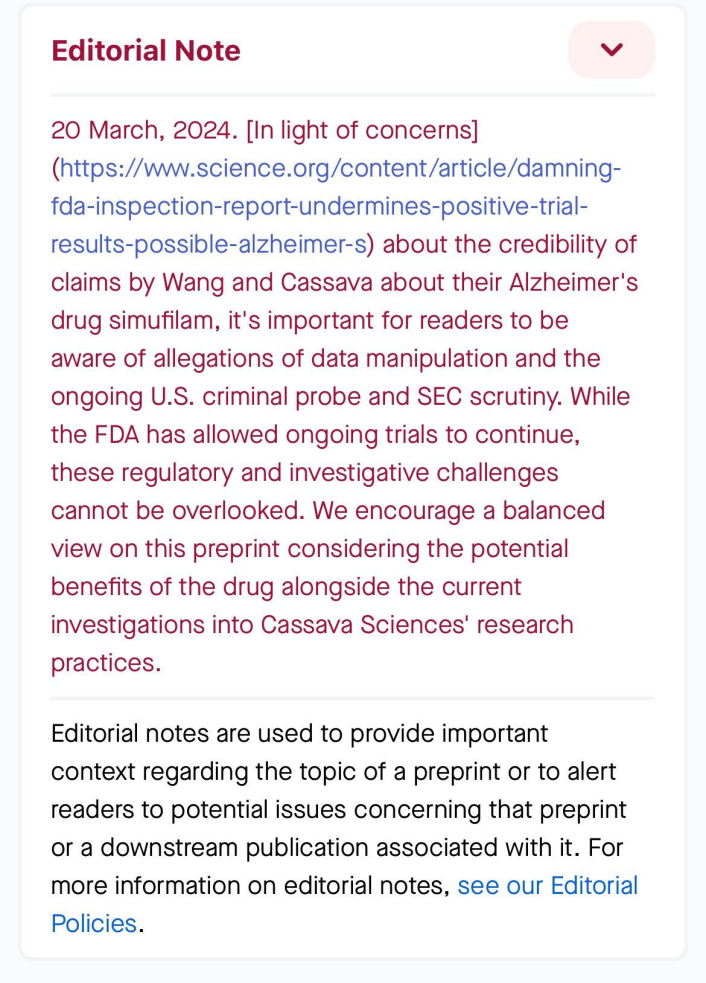
512. Statement 74 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

513. Defendant Heilbut did not present Statement 74 as pure opinion. Individuals reading Statement 74 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut did not provide readers of Statement 74 with any context that would allow them to make an independent assessment of Statement 74 and, therefore, he intended readers of Statement 74 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

514. Defendant Heilbut acted with actual malice when publishing Statement 74. At the time he published Statement 74, Heilbut knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on

simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

515. **Statement 75.** On March 25, 2024, Heilbut posted the following statement on his "X" account: "I can't recall anybody flat-out ***fabricating data*** for a Phase 2 clinical trial under FDA IND before[.]" (Ex. 80, emphasis added). Heilbut's March 25, 2024, statement was posted in response his own post stating "Cassava achieves the rare distinction of earning an 'Editorial Note' on the Ph2b *preprint* that they never could get published." and including the following image:




(*Id.*)

516. Statement 75 implies that Cassava engaged in fraudulent and illegal activity by fabricating test results. The phrase "fabricated" was reasonably understood to mean that Cassava manipulated the test results for its drug to deceive. Individuals reading Statement 75 reasonably understood that Heilbut was implying that Cassava engaged in fraudulent and illegal activity because simufilam does not work and the previously published foundational science and testing were manipulated to deceive people about the results.

517. Statement 75 was factually and demonstrably false. Cassava did not use or rely on any fabricated test results. Cassava has not engaged in fraudulent or illegal activity in connection with its testing and research of simufilam. Cassava's drug is not a fake. It is a real drug, with real testing, and with real results from that testing. *See* SAC ¶¶ 520–543 (additional allegations relating to falsity).

518. Defendant Heilbut did not present Statement 75 as pure opinion. Individuals reading Statement 75 reasonably understood that Heilbut was conveying factual information about Cassava and its management. Heilbut's statement could be read in the context of the posted excerpt but he told readers that there was "flat out fabricated data for Phase 2" as opposed to an ongoing, undecided investigation into its preclinical data. He did not share with the readers that the "damning FDA inspection report" as sensationally described by the *Science* reporter and cited in the Editorial Note did not reveal any fraud and instead, intended readers of Statement 75 to rely upon his conclusion on the subject. *See* SAC ¶¶ 622–650 (additional allegations relating to opinion).

519. Defendant Heilbut acted with actual malice when publishing Statement 75. At the time he published Statement 75, Heilbut knew, or should have known, that the FDA report found only very few instances of averaging two instead of three values for biomarker readings – which

does not amount to "flat-out fabricating data." Heilbut also knew he had seen no firsthand evidence showing that Cassava used or relied on fabricated test results, he understood or should have understood there were no material anomalies or inaccuracies with Cassava's test results, he knew there were non-fraudulent explanations for the criticisms that had been made about Cassava's test results, he knew that Cassava's testing and protocols had been reviewed by multiple agencies, he knew Cassava's testing had been reviewed by independent experts, and he knew that the results of testing on simufilam had been positive. *See* SAC ¶¶ 544–621 (additional allegations relating to actual malice).

## VI. EACH OF THE DEFENDANTS' DEFAMATORY STATEMENTS ABOUT CASSAVA WERE FALSE.

### A. Cassava is Not a Fraud.

520. Defendants repeatedly stated or implied that Cassava engaged in fraudulent and illegal activity. One of the ways that Defendants conveyed that message was by saying that Cassava was a fraud. Those statements were factually inaccurate and the implication was factually inaccurate.

521. One, Cassava is not a fraud. Cassava has not engaged in any wrongful or criminal deception. Cassava did not engage in any criminal activity. Review of the information identified above, as well as Cassava's SEC filings, Cassava's press releases, journal articles relating to simufilam, and Cassava's submissions to federal agencies demonstrate that Cassava is not a fraud and did not engage in criminal activity.

522. Two, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying

research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

523. Three, Cassava did not fabricate, manipulate, or doctor the studies conducted on simufilam. Nor were the studies fabricated, manipulated, or doctored by the laboratories, scientists, and doctors involved with the studies. The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

524. Four, the research relied upon by Cassava for the development of simufilam and studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the research and studies are consistent with the testing protocols, testing results, and peer-reviewed publications and studies. The underlying research and studies, as well as peer-reviewed publications and studies, demonstrate that Cassava's research and studies do not contain material errors or undisclosed anomalies.

525. Five, Cassava has not knowingly made any false or misleading statements regarding simufilam in public statements, SEC filings, submissions to laboratories, summaries to patients, or submissions to the federal agencies, including the FDA and NIH. Nor has Cassava knowingly made any false or misleading statements regarding the research supporting and studies conducted of simufilam.

526. Six, Cassava's executives or board members are required to sign quarterly certifications and attestations to ensure the accuracy of Cassava's information and operations. Defendants' failure to disclose this fact would reasonably lead readers to conclude that Cassava's executives and board members were engaged in fraudulent activities.

527. Seven, two Phase 3 clinical trials of simufilam were approved by FDA and are underway. These trials have enrolled approximately 1,900 patients and are being conducted at 170 independent clinical sites in the United States, Canada, Australia, and South Korea. The trials are being run by an independent CRO under the supervision of an Independent Review Board and an Independent Safety Board. Over 500 patients have also opted into the Phase 3 open label study to continue taking simufilam. If Cassava were a fraud and simufilam were a fake, the Phase 3 clinical trials would not have been approved by FDA, and patients would not continue to enroll in those studies.

528. Eight, in June 2023, Cassava announced the publication of new research that showed the effects of simufilam on the mechanistic Target of Rapamycin (mTOR). Scientific literature shows overactive mTOR plays a key role in aging, Alzheimer's disease and other conditions. The data, published in a peer-reviewed journal, suggested a meaningful impact of simufilam on mTOR signaling. If Cassava were a fraud, a peer-reviewed journal publication would not confirm simufilam's impact on mTOR.

529. Nine, in September 2023, Cassava announced the publication of new research that confirms the mechanism of action of simufilam. Researchers at the Cochin Institute (Paris, France) used a highly precise cell-based assay to show that simufilam interrupts amyloid binding to the α7 nicotinic acetylcholine receptor. The assay was designed to determine if a drug candidate for Alzheimer's can interrupt the disease's mechanism. The results of this independent research shows that simufilam does precisely that. If Cassava were a fraud, independent research published in a peer-reviewed journal would not confirm simufilam's primary mechanism of action.

**B. Cassava Did Not Fabricate Data or Rely on Fabricated Data.**

530. Defendants repeatedly stated or implied that Cassava engaged in fraudulent and illegal activity. One of the ways that Defendants conveyed that message was by saying that

Cassava fabricated test results and relied on fabricated test results. Those statements were factually inaccurate and the implication was factually inaccurate.

531. One, Cassava did not rely upon any fabricated, manipulated, or doctored research in connection with developing simufilam, including the Western blot analysis. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated, manipulated, or doctored. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated, manipulated, or doctored.

532. Two, none of the testing results of simufilam had been manipulated. The testing results published by Cassava were done by individuals who were "blind" to whether they were analyzing samples from a patient who took a placebo or simufilam. Cassava was not a fraud, had not submitted doctored information to the FDA, and had not built itself on manipulated science.

533. Three, the research relied upon by Cassava for the development of simufilam, including Western blot analysis, does not contain material errors or undisclosed anomalies. The information included in the research is consistent with the testing protocols, testing results, and other peer-reviewed publications and studies. The underlying research, as well as other peer-reviewed publications and studies, demonstrate that Cassava's research does not contain material errors or undisclosed anomalies.

534. Four, much of the research relied upon by Cassava for development of simufilam, including Western blot analysis, was independently reviewed by the publishing journals during and after the disinformation campaign. None of the publishing journals have identified evidence of fabrication, manipulation or doctoring of information, including relating to Western blot analysis.

535. Five, in November 2021, Cassava Sciences announced that *The Journal of Neuroscience* had investigated and found no evidence of data manipulation in a paper on simufilam published in that journal in July 2012. The Editor-in-Chief previously authorized Cassava Sciences to share a statement on this matter, including: "No evidence of data manipulation was found for Western blot data." (Ex. 81.) Western blots such as this are non- or semi-quantitative at best and are prone to visual abnormalities. Cropping and splicing are acceptable forms of Western blot manipulation and do not indicate fabrication, manipulation of data, or doctored analysis.

536. Six, Defendants failed to disclose that they lacked a reliable basis for the statements they made about the research relied upon by Cassava for development of simufilam, including Western blot analysis. Among other things, Defendants lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies with the research relied upon by Cassava, including the Western blot analysis.

537. Seven, Defendants failed to disclose that it is a common and accepted practice to reanalyze testing results when initial testing results show inconsistencies and inexplicably high variation. Cassava retested the Phase 2b results specifically because the initial biomarker data showed inconsistencies between biomarkers (individual patients were both improving and worsening) and dramatic changes over a one month-interval. This presented a logical inconsistency especially in the placebo group, which clarified the need for retesting. Defendants further failed to disclose that the analyses of plasma pTau-181, which corroborated the Phase 2b CSF readings, were conducted by Quanterix, an independent laboratory. Defendants' failure to disclose these facts prevented the readers of their publication from making an independent assessment of the research. The readers were left to rely upon Defendants' conclusions.

538. Eight, in June 2023, Cassava announced the publication of new research that showed the effects of simufilam on the mechanistic Target of Rapamycin (mTOR). Scientific literature shows overactive mTOR plays a key role in aging, Alzheimer's disease and other conditions. The data, published in a peer-reviewed journal, suggested a meaningful impact of simufilam on mTOR signaling. If Cassava previously relied upon fabricated or manipulated data, a peer-reviewed journal publication would not confirm simufilam's impact on mTOR.

539. Nine, in September 2023, Cassava announced the publication of new research that confirms the biological activity of simufilam. Researchers at the Cochin Institute (Paris, France) used a highly precise cell-based assay to show that simufilam interrupts amyloid binding to the α7 nicotinic acetylcholine receptor. The assay was designed to determine if a drug candidate for Alzheimer's can interrupt the disease's mechanism. The results of this independent research shows that simufilam does precisely that. If Cassava previously relied upon fabricated or manipulated data, independent research published in a peer-reviewed journal would not confirm simufilam's primary mechanism of action.

**C. Cassava Did Not Mislead Regulators, Investors, or Patients.**

540. Defendants repeatedly stated or implied that Cassava engaged in fraudulent and illegal activity. One of the ways that Defendants conveyed that message by saying that Cassava lied to federal agencies, publishing bodies, and investors. Those statements were factually inaccurate and the implication was factually inaccurate.

541. One, Cassava has not knowingly made any false or misleading statements regarding simufilam in public statements, SEC filings, submissions to laboratories, summaries to patients, or submissions to the federal agencies, including the FDA and NIH. Nor has Cassava knowingly made any false or misleading statements regarding the research supporting and studies conducted

of simufilam. Cassava's statements compared with the underlying research and studies demonstrate that Cassava has not made any false or misleading statements on these topics.

542. Two, Cassava has no motive to deceive regulators, investors, or patients. Cassava's management has not received cash payments tied to the Company's stock price, and may or may never receive any such cash payments, depending on final test results for simufilam and other variables. Review of Cassava's financial statements, distribution reports, and SEC filings demonstrate that Cassava's management has not received cash payments tied to the Company's stock price, and may or may never receive any such awards, depending on final test results for simufilam and other variables.

543. Three, Cassava's officers and directors have not sold any of their personal holdings in Cassava in over a decade. Review of Cassava's financial statements, distribution reports, and SEC filings demonstrate that Cassava's officers and directors have not sold shares in Cassava in over a decade.

## VII. THE DEFENDANTS PUBLISHED EACH OF THEIR DEFAMATORY STATEMENTS ABOUT CASSAVA WITH ACTUAL MALICE.

544. Defendants acted with actual malice when they stated and implied that Cassava engaged in fraudulent and illegal activities by, among other things, fabricating test results and lying to government agencies, publishing entities, and investors. Defendants knew they had no basis for stating and implying Cassava's actions were fraudulent or illegal. Defendants also knew there were non-fraudulent and innocent explanations for any anomaly they may have observed. They either intentionally or recklessly decided to accuse Cassava of fraudulent or illegal activity as opposed to limiting their statements to observations of alleged anomalies. They crossed that bridge because they had a financial motive to drive down Cassava's stock price, had personal

animosity towards Cassava's management, and had a personal desire for self-promotion on the back of lying about Cassava's hard work.

### A. Defendants Knew that They Had No Evidence to Support their Statements and Implications About Cassava.

545. Defendants knew they had no firsthand evidence to support their statements and implications about Cassava. They did not have access to the original testing work for simufilam. They did not have discussions with the scientists who conducted tests on simufilam. They did not have discussions with anyone at Cassava. At the time they made each of their defamatory statements, Defendants knew that they were making statements about Cassava, its testing, and its drug (simufilam) with respect to which they did not have firsthand evidence in support. They knew they were acting with reckless disregard for the truth without such firsthand evidence.

546. One, Defendants knew they had no evidence that Cassava was a fraud. Defendants knew that Cassava executives and board members had invested time and money into the Company. Defendants knew Cassava and its work had been reviewed and scrutinized by federal regulators. Defendants knew research relating to simufilam had been reviewed and scrutinized by scientific journals and independent scientists. Defendants knew research relating to simufilam had been generated, then published, by numerous outside scientists. All these activities are inconsistent with Cassava being a fraud.

547. Two, Defendants also knew they had no evidence that Cassava relied on fabricated science as the foundation for simufilam. Defendants knew they had no source with firsthand knowledge indicating that the underlying science was fraudulent. Defendants knew they had no access to (or sources with access to) the backup and support for the underlying science. Defendants knew that the underlying science had been published for years in science journals prior to their

disinformation campaign without being proven as fraudulent. All of these facts are inconsistent with the underlying science being fabricated.

548. Three, Defendants knew they had no evidence that Cassava fabricated testing results. Defendants knew they had no source with firsthand knowledge indicating that the testing results had been fabricated. Defendants knew they had no access to (or source with access to) the backup and support for the simufilam testing. Defendants knew that many of the testing results had been published prior to their disinformation campaign without being proven as fraudulent. All of these facts are inconsistent with the underlying science being fabricated.

549. Four, Defendants knew they were making an unfounded accusation when stating that the underlying research and simufilam tests were fabricated, manipulated, and doctored. Defendants are scientists. Scientists know there are non-fraudulent explanations for the type of "anomalies" and "errors" discussed in the Defendants' publications. Defendants knew they were making an unfounded leap from the alleged "anomalies" and "errors" to fraudulent behavior by Cassava.

### B. Defendants Reviewed and Had Access to Voluminous Records Contradicting Their Statements and Implications about Cassava.

550. Defendants presented and positioned themselves as individuals who closely monitored and were intimately familiar with the information published by Cassava and others about simufilam, its underlying science, and its testing. Defendants' review of and access to this information makes their statements about Cassava and simufilam, which contradicted that information, in reckless disregard for the truth. Defendants made statements and implications

about Cassava and simufilam that they knew were contradicted by reliable information. That is another way Defendants acted with reckless disregard for the truth.

### 1. Defendants Reviewed and Had Access to Voluminous Records about Cassava and Simufilam.

551. Defendants knew and/or reviewed information that contradicted the statements they made about Cassava, the research underlying simufilam, and testing of simufilam.

552. **SEC Filings.** One, on information and belief, Defendants reviewed Cassava's filings with the SEC prior to making their false and defamatory statements. Cassava makes this allegation based on the following: (a) Defendants referenced SEC filings in some of their publications and/or republications, (b) Defendants referenced securities fraud and government agencies associated with securities fraud in some of their publications and/or republications, (c) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, and (d) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in tracking publicly available information about Cassava that could impact its stock price.

553. Cassava's filings with the SEC include accurate information regarding the research underlying simufilam as well as the tests conducted using simufilam. The information included in Cassava's SEC filings contradict Defendants' false and defamatory statements. The following are some of the SEC filings that contain information contradicting Defendants' false and defamatory statements:

a. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2023, published on February 28, 2024. (Ex. 82.)

b. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2022, published on February 28, 2023. (Ex. 83.)

c. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2021, published on February 28, 2022. (Ex. 84.)

d. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2020, published on March 23, 2021. (Ex. 85.)

e. Cassava Sciences Form 10-K for the fiscal year ended December 31, 2019, published on March 26, 2020. (Ex. 86.)

554. Defendants knew Cassava filed reports with the SEC, including these reports. Defendants knew the reports were publicly available. Defendants knew Cassava certified the information in the reports was accurate. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, SEC filings.

555. **Press Releases.** Two, on information and belief, Defendants reviewed Cassava's press releases prior to making their false and defamatory statements, including press releases that directly contradicted the false and defamatory statements made by Defendants. Cassava makes this allegation based on the following: (a) Defendants referenced Cassava's press releases in some of their publications and/or republications, (b) Defendants claimed to be responding to Cassava's press releases in some of their publications and/or republications, (c) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, and (d) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in tracking publicly available information about Cassava that could impact its stock price.

556. Cassava's press releases include accurate information regarding the research underlying simufilam as well as the tests conducted using simufilam. The information included in

Cassava's press releases contradict Defendants' false and defamatory statements. The following are some of press releases that contain information contradicting Defendants' false and defamatory statements:

a. *Pain Therapeutics Announces Name Change to Cassava Science* (3/27/2019). (Ex. 87.)

b. *Cassava Sciences Completes Patient Enrollment for a Phase 2a Study in Patients with Alzheimer's Disease* (4/15/2109). (Ex. 88.)

c. *Cassava Sciences to Present at Maxim Group's Conference on Alzheimer's Disease* (6/18/2019). (Ex. 89.)

d. *Cassava Sciences Reports Positive Phase 2a Clinical Results in Alzheimer's Patients* (9/9/2019). (Ex. 90.)

e. *Cassava Sciences Initiates Phase 2b Clinical Study in Alzheimer's Patients* (9/16/2019). (Ex. 91.)

f. *Cassava Sciences' Clinical Results in Alzheimer's Selected as Late-Breaking News at CTAD 2019* (10/24/2019). (Ex. 92.)

g. *Cassava Sciences Announces Recent Clinical Highlights and Third Quarter 2019 Financial Results* (10/29/2019). (Ex. 93.)

h. *Cassava Sciences Announces Additional Positive Phase 2a Clinical Data in Alzheimer's Disease at CTAD 2019* (12/6/2019). (Ex. 94.)

i. *Cassava Sciences Announces Completion of Patient Enrollment of a Phase 2b Study in Alzheimer's Disease* (1/28/2020). (Ex. 95.)

j. *Cassava Sciences Announces Phase 2a Study of PTI-125 Published in the Journal of Prevention of Alzheimer's Disease* (2/11/2020). (Ex. 96.)

k. *Cassava Sciences Announces Clinical Update and Business Progress Across Neuroscience Pipeline* (3/19/2020). (Ex. 97.)

l. *Cassava Sciences Announces Initiation of an Open-Label to Evaluate PFI-125 in Patients with Alzheimer's Disease* (3/25/2020). (Ex. 98.)

m. *Cassava Sciences Announces Full-year 2019 Financial Results and Anticipated Key Milestones for 2020* (3/26/2020). (Ex. 99.)

n. *Cassava Sciences Announces New $2.5 Million Research Grant Award from National Institute of Health* (4/23/2020). (Ex. 100.)

o. *Cassava Announces Presentation at the Jefferies Virtual Healthcare Conference and Provides Updates Regarding Phase 2b Study of PTI-125* (6/3/2020). (Ex. 101.)

p. *Cassava Sciences Gives Keynote Presentation on SavaDx at Scientific Conference* (7/9/2020). (Ex. 102.)

q. *Cassava Sciences Announces Second Quarter 2020 Financial Results and Mid-year Business Review* (8/12/2020). (Ex. 103.)

r. *Cassava Sciences Announces Final Results of a Phase 2b Clinical Study of Simufilam in Patients with Alzheimer's Disease* (9/14/2020). (Ex. 104.)

s. *Cassava Sciences' Phase 2b Clinical Results in Alzheimer's Selected as Late-Breaking News at CTAD 2020* (9/30/2020). (Ex. 105.)

t. *Cassava Sciences Announces Additional Clinical Data from a Phase 2b Study of Simufilam in Alzheimer's Disease* (11/4/2020). (Ex. 106.)

u. *Cassava Sciences Appoints Dr. James Kupiec as Chief Clinical Development Officer* (1/4/2021). (Ex. 107.)

v. *Cassava Sciences' Simufilam Improves Cognition and Behavior in Alzheimer's Disease in Interim Analysis of Open-Label Study* (2/2/21). (Ex. 108.)

w. *Cassava Sciences Announces Significant Program Progress and Expected Key Milestones in 2021 for its Clinical Program in Alzheimer's Disease* (2/8/21). (Ex. 109.)

x. *Cassava Sciences Announces Positive End-of-Phase 2 Meeting with FDA and Outlines Pivotal Phase 3 Program for Simufilam in Alzheimer's Disease* (2/22/21). (Ex. 110.)

y. *Cassava Sciences to Present at SVB Leerink Global Healthcare Conference* (2/23/21). (Ex. 111.)

z. *Cassava Sciences Announces Full-year 2020 Financial Results and Business Highlights* (3/23/21). (Ex. 112.)

aa. *Cassava Sciences Reports First Quarter 2021 Financial Results and Announces Guidance on Clinical Data Release* (4/21/2021). (Ex. 113)

bb. *Cassava Sciences Invited by the NIH to Participate in Sachs 4th Annual Neuroscience Innovation Forum* (4/26/2021). (Ex. 114.)

cc. *Cassava Sciences Invited to Participate in B. Riley Securities' Neuroscience Conference* (4/27/2021). (Ex. 115.)

dd. *Cassava Sciences Announces Initiation of Cognition Maintenance Study in Alzheimer's Disease* (5/10/2021). (Ex. 116.)

ee. *Cassava Sciences Announces New $2.7 Million Research Grant Award from National Institutes of Health* (5/12/2021). (Ex. 117.)

ff. *Cassava Sciences to Participate in Q&A Panel Discussion on Alzheimer's Disease* (5/24/2021). (Ex. 118.)

gg. *Cassava Sciences to Present at Raymond James 2021 Human Health Innovation Conference* (6/17/2021). (Ex. 119.)

hh. *Cassava Sciences Provides Mid-Year Corporate Update, Clinical Development Progress and Announces Guidance on Clinical Data Release* (6/21/2021). (Ex. 120.)

ii. *Cassava Sciences Selects Clinical Research Organization for Phase 3 Clinical Program in Alzheimer's Disease* (6/21/2021). (Ex. 121.)

jj. *Cassava Sciences to Present New Clinical Dataset at 2021 Alzheimer's Association International Conference* (7/21/2021). (Ex. 122.)

kk. *Cassava Sciences Announces Positive Data with SavaDx from a Randomized Controlled Phase 2b Study of Simufilam* (7/26/21). (Ex. 123.)

ll. *Cassava Sciences Announces Positive Cognition Data with Simufilam in Alzheimer's Disease* (7/29/2021). (Ex. 124.)

mm. *Cassava Sciences Announces Positive Biomarker Data with Simufilam in Alzheimer's Disease* (7/29/21). (Ex. 125.)

nn. *Cassava Sciences Announces Agreement with FDA on Special Protocol Assessments (SPA) for its Phase 3 Studies of Simufilam for the Treatment of Alzheimer's Disease* (8/24/21). (Ex. 126.)

oo. *Cassava Sciences Responds to Allegations* (8/25/2021). (Ex. 127.)

pp. *Cassava Sciences Releases Statement Regarding Plasma p-tau Analysis from a Previously Disclosed Phase 2b Clinical Study in Alzheimer's Patients* (8/27/2021). (Ex. 128.)

qq. *Cassava Sciences Releases a Public Statement Regarding Recent Allegations* (9/3/2021). (Ex. 129.)

rr. *Cassava Sciences Announces Top-Line Results of 12-month Interim Analysis from Open-label Study Evaluating Simufilam in Alzheimer's Disease* (9/22/2021). (Ex. 130.)

ss. *Cassava Sciences Initiate Phase 3 Efficacy Trial of Simufilam for the Treatment of Patients with Alzheimer's Disease* (10/6/2021). (Ex. 131.)

tt. *Review by Journal of Neuroscience Shows No Evidence of Data Manipulation in Technical Paper Foundational to Cassava Sciences' Lead Drug Candidate* (11/4/2021). (Ex. 81.)

uu. *Cassava Sciences Initiates a Second Phase 3 Study of Simufilam for the Treatment of Patients with Alzheimer's Disease* (11/18/2021). (Ex. 132.)

vv. *Science Journal Finds No Evidence to Support Claims of Data Manipulation in 2005 Publication* (12/21/2021). (Ex. 133.)

ww. *Cassava Sciences Launches Clinical Website to Support Phase 3 Studies of Oral Simufilam in Alzheimer's Disease* (12/23/2021). (Ex. 134.)

xx. *FDA Denies Citizen Petition Filed on Behalf of Short Selling Clients* (2/10/2022). (Ex. 135.)

yy. *Cassava Sciences Reports Full-year 2021 Financial Results and Operating Updates* (2/28/2022). (Ex. 136.)

zz. *Cassava Sciences Announces Fireside Chat and Presentation* (3/30/2022). (Ex. 137.)

aaa. *Cassava Sciences Invited to Participate in B. Riley Securities' Neuroscience Conference* (4/25/2022). (Ex. 138.)

bbb. *Cassava Sciences Reports First Quarter Financial Results for 2022 and Updates on Phase 3 Clinical Program* (5/5/2022). (Ex. 139.)

ccc. *Cassava Sciences Reports Second Quarter Financial Results for 2022, Mid-year Corporate Update and Interim Analysis of Open-label Study* (8/3/2022). (Ex. 140.)

ddd. *No Evidence of Data Manipulation in Science Publication on Simufilam* (8/18/2022). (Ex. 141.)

eee. *Cassava Sciences Announces Initiation of an Open-label Extension Study* (10/13/2022). (Ex. 142.)

fff. *Cassava Sciences Files Lawsuit Against Perpetrators of 'Short and Distort' Campaign* (11/3/2022) (Ex. 143.)

ggg. *Cassava Sciences Reports Third Quarter Financial Results for 2022 and Business Update* (11/7/2022) (Ex. 144.)

hhh. *Cassava Sciences Announces Completion of Dosing in Open-Label Study of Simufilam for Alzheimer's Disease* (12/6/2022) (Ex. 145.)

iii. *Cassava Sciences Announces Positive Top-Line Clinical Results in Phase 2 Study Evaluating Simufilam in Alzheimer's Disease* (1/24/2023) (Ex. 146.)

jjj. *Cassava Sciences Announces Patient Enrollment Update for Phase 3 Studies of Simufilam for the Treatment of Alzheimer's Disease* (2/8/2023) (Ex. 147.)

kkk. *Cassava Sciences Reports Full-year 2022 Financial Results and Operating Updates* (2/28/2023) (Ex. 148.)

lll. *Cassava Sciences to Present at the 2023 H.C. Wainwright Investor Conference* (4/26/2023) (Ex. 149.)

mmm. *Cassava Sciences Reports Q1 2023 Financial Results and Operating Updates* (5/1/2023) (Ex. 150.)

nnn. *New Data by Academic Researchers Highlights Biological Activity of Simufilam on Filamin A* (5/8/2023) (Ex. 151)

ooo. *Cassava Sciences Completes Patient Dosing in Randomized Controlled Trial of Simufilam in Alzheimer's Disease* (5/11/2023) (Ex. 152.)

ppp. *Cassava Sciences to Present at the Jeffries Global Healthcare Conference* (6/1/2023) (Ex. 153.)

qqq. *New Publication Highlights Basic Science Supporting Simufilam* (6/12/2023) (Ex. 154.)

rrr. *New Research Shows Simufilam Suppresses Overactive mTor* (6/27/2023) (Ex. 155.)

sss. *Oral Simufilam Slowed Cognitive Decline in Randomized Withdrawal Trial of Mild-to-Moderate Alzheimer's Disease* (7/5/2023) (Ex. 156.)

ttt. *Cassava Sciences Reports Q2 2023 Financial Results and Operating Updates* (8/3/2023) (Ex. 157.)

uuu. *Cassava Sciences Invited to Present in Four Upcoming Investor Conferences* (9/6/2023) (Ex. 158.)

vvv. *Cassava Sciences Announces Science Publication That Confirms Mechanism of Action of Simufilam, a Novel Drug Candidate for People with Alzheimer's Disease* (9/11/2023) (Ex. 159.)

www. *Cassava Sciences Completes Patient Enrollment for Pivotal Phase 3 Clinical Trial of Oral Simufilam in Alzheimer's Disease* (10/2/2023) (Ex. 160.)

xxx. *Cassava Sciences to Present at the Jeffries Biotech CNS/Neuro Summit in NY* (10/5/2023) (Ex. 161.)

yyy. *Statement by Cassava Sciences Regarding an Internal CUNY Report Leaked to the Press* (10/12/2023) (Ex. 162.)

zzz. *MRI Data Suggest Simufilam is Not Associated with Amyloid-related Imaging Abnormalities (ARIA)* (10/25/2023) (Ex. 163.)

aaaa. *Cassava Sciences Completes Enrollment for Pivotal Phase 3 Program of Simufilam in Alzheimer's Disease* (11/6/2023) (Ex. 164.)

bbbb. *Cassava Sciences Reports Third Quarter 2023 Financial and Operating Results* (11/7/2023) (Ex. 165.)

cccc. *No Decline in Cognition Scores in Patients with Mild Alzheimer's Disease Who Received Simufilam Continuously for 24 Months* (2/7/2024) (Ex. 166.)

dddd. *Cassava Sciences Reports Full-year 2023 Financial Results and Corporate Updates* (2/28/2024) (Ex. 167.)

eeee. *Cassava Sciences Announces Virtual Presentation at the AD/PD 2024 International Conference* (3/4/2024) (Ex. 168.)

ffff. *Cassava Sciences Announces Completion of an Interim Safety Review of Oral Simufilam On-going Phase 3 Trials* (3/25/2024) (Ex. 169.)

557. Defendants knew Cassava issued press releases discussing the foundational science for simufilam and results of testing simufilam. Defendants knew the press releases were publicly available. Defendants knew Cassava certified the information in the press releases was accurate. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, press releases.

558. **Burns & Wang Journal Articles.** Three, Defendants reviewed journal articles published by Dr. Burns and Dr. Wang discussing the foundational science relied on by Cassava in the development of simufilam and testing of simufilam. Defendants reviewed these journal articles

prior to publishing and republishing false and defamatory statements about Cassava. Among others, Defendants reviewed the following:

a. *PTI-125 Reduces Biomarkers of Alzheimer's Disease In Patients*, published in Journal of Prevention of Alzheimer's Disease (2020) (Ex. 170.)

b. *Altered Filamin A Enables Amyloid Beta-induced Tau Hyperphosphorylation and Neuroinflammation in Alzheimer's Disease*, published in Neuroimmunology and Neuroinflammation (2017) (Ex. 171.)

c. *PTI-125 Binds and Reverses an Altered Conformation of Filamin A to Reduce Alzheimer's* Disease *Pathogenesis*, Neurobiology of Aging (2017) (Ex. 172.)

d. *Reducing Amyloid-Related Alzheimer's Disease Pathogenesis by a Small Molecule Targeting Filamin A*, Journal of Neuroscience (2012) (Ex. 173.)

e. *Simufilam Reverses Aberrant Receptor Interactions of Filamin A in Alzheimer's Disease,* published in the International Journal of Molecular Science. (Ex. 5.)

559. These journal articles provided accurate information regarding the foundational science relied upon by Cassava in the development of simufilam and testing of simufilam. These journal articles confirmed the potential effectiveness of simufilam and valid scientific basis for simufilam. None of these journal articles contain fabricated, manipulated, or doctored information; and, none of these journal articles have been withdrawn for containing fabricated, manipulated, or doctored information. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, journal articles.

560. **Foundational Science Journal Articles.** Four, on information and belief, prior to publishing and republishing false and defamatory statements about Cassava, Defendants reviewed journal articles published by other scientists regarding the foundational science relied upon by Cassava in the development of simufilam. Cassava makes this allegation based on the following: (a) the Defendants are scientists so would know how to locate these articles, and (b) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means (i) they

conducted searches for relevant journal articles and (ii) would have discovered these articles as part of that search.

561. Journal articles published by scientists other than Dr. Burns and Dr. Wang provided accurate information regarding the foundational science for simufilam as a potential treatment for Alzheimer's disease. Among other, the following are some of the journal articles containing accurate information regarding the foundational science for the role of filamin protein in disease:

a. A February 1998 paper titled "Interaction of Presenilins with the Filamin Family of Actin-Binding Proteins," published in the *Journal of Neuroscience*. (Ex. 192.)

b. A September 2000 paper titled "Presenilin I Interaction with Cytoskeleton and Association with Actin Filaments," published in the journal *NeuroReport*. (Ex. 82.)

c. An October 2000 paper titled "Physical and Genetic Interaction of Filamin with Presenilin in Drosophila," published in the *Journal of Cell Science*. (Ex. 83.)

d. A November 2004 paper titled "The Many Faces of Filamin: a Versatile Molecular Scaffold for Cell Motility and Signaling," published in the journal *Natural Cell Biology*. (Ex. 84.)

e. A February 2009 paper titled "Hyaline Protoplasmic Astrocytopathy of Neocortex," published in the *Journal of Neuropathology & Experimental Neurology*. (Ex. 85.)

f. A September 2010 paper titled "Alzheimer's Disease-Linked Presenilin Mutation (PS1M146L) Induces Filamin Expression and γ-Secretase Independent Redistribution," published in the *Journal of Alzheimer's Disease*. (Ex. 86.)

g. A 2014 paper titled "Participation of Group I p21-activated Kinases in Neuroplasticity," published in the *Journal of Physiology-Paris*. (Ex. 87.)

h. A November 2015 paper titled "Investigating the Role of Filamin C in Belgian Patients with Frontotemporal Dementia Linked to GRN Deficiency in FTLD-TDP Brains," published in the journal *Acta Neuropathologica Communications*. (Ex. 88.)

i. A June 2019 paper titled "Memantine Improves Cognitive Function and Alters Hippocampal and Cortical Proteome in Triple Transgenic Mouse

Model of Alzheimer's Disease," published in the journal *Experimental Neurobiology*. (Ex. 89.)

j. A February 2020 paper titled "Filamin A Inhibition Reduces Seizure Activity In a Mouse Model of Focal Cortical Malformations," published in the journal *Science Translational Medicine*, based on a research team from Yale University. (Ex. 90.)

k. A November 2020 paper titled "Echinacoside Suppresses Amyloidogenesis and Modulates F-actin Remodeling by Targeting the ER Stress Sensor PERK in a Mouse Model of Alzheimer's Disease," published in the journal *Frontiers in Cell and Developmental Biology*. (Ex. 91.)

l. A July 2021 paper titled "Filamin-A and Myosin VI Colocalize with Fibrillary Tau Protein in Alzheimer's Disease and FTDP-17 Brains," published in the journal *Brain Research*. (Ex. 92.)

m. A May 2022 paper titled "Actin-binding protein filamin-A drives tau aggregation and contributes to progressive supranuclear palsy pathology," published in *Sci. Adv.*, written by a research team at Nagoya University. (Ex. 186.)

n. A November 2022 paper titled "Evidence of Filamin A loss of solubility at the prodromal stage of neuropathologically-defined Alzheimer's disease," published in *Front Aging Neuroscience* by academic researchers in Quebec, Canada. (Ex. 187.)

o. A February 2023 paper titled "Direct and Indirect Effects of Filamin A on Tau Pathology in Neuronal Cells," published in the journal *Molecular Neurobiology* by academic researchers in Quebec, Canada. (Ex. 188.)

p. An April 2023 paper titled "Filamin A is overexpressed in non-alcoholic steatohepatitis and contributes to the progression of inflammation and fibrosis," published in the journal *Biochemical and Biophysical Research Communications* by researchers at Sichuan University. (Ex. 189.)

q. A May 2023 abstract titled "A novel filamin A-binding molecule may significantly enhance SST2 antitumoral actions in GH- secreting PitNET cells," published in *Endocrine Abstracts*, written by a research team at the University of Milan (Ex. 4.)

562. Simufilam is a drug that acts on filamin protein. These journal articles by independent scientists implicate filamin protein in disease. They provide a valid scientific basis for simufilam's potential to treat disease. These journal articles contradict the false and defamatory statements made by the Defendants. None of these journal articles have been withdrawn for

containing fabricated, manipulated, or doctored information. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, journal articles.

563. **Confirmatory Evaluations.** Five, on information and belief, prior to publishing and republishing false and defamatory statements about Cassava, Defendants were aware that evaluations conducted by science journals after misinformation about Cassava was first published contradicted their statements. Cassava makes this allegation based on the following: (a) Defendants referenced these evaluations in some of their publications and/or republications, (b) Defendants claimed to be responding to these evaluations in some of their publications and/or republications, (c) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, (d) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in tracking publicly available information about Cassava that could impact its stock price, (e) Defendants are scientists so would know how to locate information about these evaluations.

564. The misinformation spread by Defendants and others had their desired effect in causing others to act on their misinformation. Several journals reviewed their simufilam-related articles after misinformation was spread about Cassava and simufilam. Each of the journals found no evidence that Cassava fabricated, manipulated, or doctored results. For example:

a. In November 2021, Cassava Sciences announced that *The Journal of Neuroscience* had investigated and found no evidence of data manipulation in a paper on simufilam published in that journal in July 2012. The Editor-in-Chief previously authorized Cassava Sciences to share a statement on

this matter, including: "No evidence of data manipulation was found for Western blot data." (Ex. 81.)

b. In December 2021, Cassava Sciences announced that *Neuroscience* investigated and found no evidence of data manipulation in a paper published in that journal in 2005. The Editor-in-Chief stated: "After careful examination of these original material, Neuroscience found no evidence of manipulation of the western blot data or other figures of this publication." (Ex. 133.)

c. In May 2022, *Neurobiology of Aging* investigated and found no evidence of data manipulation in a paper on simufilam published in that journal in 2017. The journal's Editor-in-Chief stated: "Overall, the editors did not find compelling evidence of data manipulation intended to misrepresent the results." (Ex. 141.)

d. In July 2022, *Molecular Neurodegeneration* re-published a 2021 paper that had previously been retracted due to allegations of data manipulation after one of the co-authors of the paper re-ran the allegedly falsified Western blots and came to the same conclusion as Dr. Wang did in 2021. (Ex. 190.)

e. In August 2022, Cassava Sciences announced that *The Journal of Prevention of Alzheimer's Disease* investigated and found no evidence of data manipulation in a paper published in that journal in 2020. The journal stated: "We do not find convincing evidence of manipulation of data or

intent to mislead, and therefore take no action regarding the published paper." (Ex. 141.)

565. Defendants continued to make their defamatory statements about Cassava and simufilam even after learning that journals, who evaluated claims of data anomalies, found no evidence to support those claims. Nor did Defendants retract their previous statements about data manipulation and fabrication of test results after learning of these conclusions by the journals.

566. **Cassava's Complaint.** Six, Defendants were aware of accurate information about Cassava and simufilam based on the Complaint and First Amended Complaint filed by Cassava on November 2, 2021 and November 4, 2021, respectively. Each of the Defendants were served with copies of the First Amended Complaint. The First Amended Complaint includes over 400 paragraphs and 106 exhibits that explain why the Defendants statements and implications about Cassava were factually inaccurate and reckless. Defendants continued to make false statements and implications about Cassava after receiving the First Amended Complaint and failed to retract any of their prior statements.

567. **Confirmatory Studies.** Seven, on information and belief, prior to publishing and republishing false and defamatory statements about Cassava, Defendants reviewed journal articles published by other scientists confirming the efficacy of simufilam. Cassava makes this allegation based on the following: (a) the Defendants are scientists so would know how to locate these articles, (b) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means (i) they conducted searches for relevant journal articles and (ii) would have discovered these articles as part of that search, and (c) some of the studies were referenced by Defendants in their defamatory statements or were part of the thread that included their defamatory statements.

568. Journal articles published after Cassava filed the First Amended Complaint that provided accurate information regarding simufilam as a potential treatment for Alzheimer's disease including the following:

a. In May 2023, Cassava announced that researchers at the University of Milan had determined that simufilam successfully binds to and reverses alterations in FLNA. (Ex. 4.)

b. In June 2023, Cassava announced the publication of new research in a peer-reviewed journal, *Frontiers in Aging*. The research suggested a meaningful impact of simufilam on mTOR signaling. (Ex. 191.)

c. In September 2023, Cassava announced the publication of new research in a special issue of the peer-reviewed journal *International Journal of Molecular Sciences*. The research confirmed the mechanism of action of simufilam by showing that simufilam interrupts amyloid-β binding to the alpha-7 nicotinic acetylcholine receptor. The research was conducted by scientists at the Cochin Institute in France, who had no prior connection to Cassava. (Ex. 5.)

569. These journal articles and studies (including two by independent scientists) provide a valid scientific basis for simufilam's potential to treat disease. These journal articles contradict the false and defamatory statements made by the Defendants. None of these journal articles have been withdrawn for containing fabricated, manipulated, or doctored information. Nonetheless, Defendants published statements and made implications about Cassava contradicted by these, and other, journal articles.

### 2. The Sources Reviewed and Available to Defendants Provided Facts Contradicting Their Statements and Implications.

570. The sources reviewed and available to Defendants, including those listed above in Section VII.B.1, provided them with facts that contradicted their statements and implications about Cassava, simufilam, its underlying research, and its testing results. Defendants were aware of these facts when they made their defamatory statements because the facts were provided to Defendants in the sources referenced above. Alternatively, Defendants acted with reckless disregard for the truth by failing to review these sources before making their defamatory statements. On information and belief, for the reasons discussed above (Section VII.B.1), Defendants were aware of the following facts when making their defamatory statements.

571. **Fact No. 1.** Simufilam targets an altered form of a protein called filamin A (FLNA) in the Alzheimer's brain. Published studies in science journals have demonstrated that the altered form of FLNA causes neuronal dysfunction, neuronal degeneration and neuroinflammation. Simufilam seeks to simultaneously suppress both neurodegeneration and neuroinflammation.

572. **Fact No. 2.** Testing to date demonstrates that simufilam can improve brain health by reverting altered FLNA back to its native, healthy conformation, thus countering the downstream toxic effects of altered FLNA. Cassava has generated and published experimental and clinical evidence of improved brain health with simufilam.

573. **Fact No. 3.** Cassava's experimental evidence shows that altered FLNA protein contributes to Alzheimer's disease by disrupting the normal function of neurons, leading to neurodegeneration and brain inflammation. Simufilam aims to counter the altered and toxic form of FLNA in the brain, thus restoring the normal function of this critical protein.

574. **Fact No. 4.** Simufilam binds to altered FLNA with very high (femtomolar) affinity. This drug effect restores the normal shape of FLNA and the normal function of key brain receptors,

including: the alpha-7 nicotinic acetylcholine receptor; the N-methyl-D-aspartate (NMDA) receptor; and the insulin receptor. These receptors have pivotal roles in brain cell survival, cognition, and memory. In addition, recent data suggest a beneficial impact of the candidate drug on the mechanistic Target of Rapamycin (mTOR) signaling.

575. **Fact No. 5.** Cassava has generated and published experimental evidence of brain health by restoring altered FLNA with simufilam. In addition, simufilam has another beneficial treatment effect of significantly reducing inflammatory cytokines in the brain. Cassava's science is published in multiple peer-reviewed journals.

576. **Fact No. 6.** By restoring function to multiple receptors and exerting powerful anti-inflammatory effects, testing to date shows that simufilam has potential to slow the progression of neurodegeneration in patients. Simufilam is designed to slow or, potentially, even reverse the deterioration of brain cells.

577. **Fact No. 7.** Cassava's research has been supported by the National Institutes of Health (NIH) under multiple research grant awards. Each grant was awarded following an in-depth, peer-reviewed evaluation of Cassava's approach for scientific and technical merit by a panel of outside experts in the field.

578. **Fact No. 8.** The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or post-market may subject an applicant to administrative or judicial sanctions.

579. **Fact No. 9.** Cassava has complied, or is complying, with the process for eventually obtaining regulatory approval for simufilam, including:

a. Completion of extensive preclinical studies in accordance with applicable regulations, including studies conducted in accordance with good laboratory practice.

b. Submission to FDA of an Investigative New Drug application (IND), which must become effective before human clinical studies may begin.

c. Approval by an independent institutional review board (IRB) or ethics committee before each study may be initiated.

d. Performance of adequate and well-controlled human clinical studies in accordance with applicable IND regulations, code of good clinical practice (cGCP) requirements and other clinical trial-related regulations to establish the safety and efficacy of the investigational product for each proposed indication (ongoing).

580. **Fact No. 10.** Preclinical studies include laboratory evaluation of product chemistry and formulation, as well as in vitro and animal studies to assess the potential for adverse events and in some cases to establish a rationale for therapeutic use.

581. **Fact No. 11.** The conduct of preclinical studies is subject to federal regulations and requirements, including cGCP regulations for safety/toxicology studies. As sponsor, Cassava submitted the results of the preclinical studies, together with manufacturing information, analytical data, and any available clinical data or literature to the FDA as part of its IND.

582. **Fact No. 12.** Clinical studies are conducted under written protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety and assess efficacy. Each protocol, and any subsequent amendments to the protocol, must be submitted to FDA as part of the IND.

583. **Fact No. 13**. Each clinical study must be reviewed and approved by a central IRB, and if applicable, an IRB for each institution at which the clinical study will be conducted, to ensure that the risks to individuals participating in the clinical studies are minimized and are reasonable in relation to anticipated benefits.

584. **Fact No. 14.** At great expense, Cassava continues to develop simufilam as a potential drug treatment for people with Alzheimer's disease. At all times, Cassava has been in material compliance with all statutes, rules and regulations of the FDA. At each stage of development, Cassava's work has been carried out with due regard for the drug development process outlined by the FDA.

585. **Fact No. 15.** Cassava successfully conducted basic research, in vitro studies, and preclinical studies in support of an IND submission to FDA for simufilam, including requisite studies around safety pharmacology, toxicology, genotoxicity, and bioanalytical methods. Cassava filed an IND with FDA for simufilam in 2017. The FDA accepted the IND that same year.

586. **Fact No. 16.** In the Phase 1 study, simufilam was evaluated in 24 healthy human volunteers in a single site in the United States for safety, tolerability, and pharmacokinetics. Study subjects were administered a single oral dose of 50, 100, or 200 mg of simufilam. The drug was well-tolerated in all subjects. Simufilam showed no treatment-related adverse effects and no dose-limiting safety findings.

587. **Fact No. 17.** Cassava's Phase 2a study showed clinical evidence of simufilam's mechanism of action and drug-target engagement, including: (a) improvements in biomarkers of Alzheimer's disease in CSF, plasma, and lymphocytes; (b) consistency across biomarker improvements in CSF, plasma, and lymphocytes; (c) significant reductions ($p<0.01$) in both nitrated and phosphorylated forms of tau protein; (d) evidence that each individual patient showed biomarker responses to simufilam; (e) evidence that simufilam reversed the shape of altered filamin A in lymphocytes; (f) evidence that simufilam reduced levels of amyloid bound to alpha 7 nicotinic receptors in lymphocytes; (g) early clinical validation of the drug target—altered filamin A—as a facilitator protein between amyloid beta and both neuroinflammation and tau pathology.

588. **Fact No. 18.** Cassava's Phase 2(b) study showed simufilam was safe and well-tolerated. Simufilam significantly ($P<0.05$) improved an entire panel of biomarkers of disease in patients with Alzheimer's disease compared to a placebo group. In addition, Alzheimer's patients treated with simufilam showed directional improvements in validated tests of episodic memory and spatial working memory, versus patients on placebo.

589. **Fact No. 19.** In January 2021, Cassava held an End-of-Phase 2 (EOP2) meeting for simufilam with the FDA. In February 2021, Cassava announced the successful completion of its EOP2 meeting. Official meeting minutes confirm that Cassava and FDA aligned on key elements of a Phase 3 clinical program for simufilam. FDA agreed that the completed Phase 2 program, together with an ongoing and well-defined Phase 3 clinical program, were sufficient to show evidence of clinical efficacy for simufilam in Alzheimer's disease.

590. **Fact No. 20.** In February 2021, Cassava announced top-line results of a preplanned interim analysis of its open-label study with simufilam. This interim analysis summarized clinical data in the first 50 patients who had completed at least six months of drug treatment. Patients' cognition and behavior scores improved following six months of simufilam treatment, with no safety issues.

591. **Fact No. 21.** In July 2021, Cassava announced top-line results of a second preplanned interim analysis of its open-label study with simufilam. This interim analysis summarized clinical data on the first 50 patients who had completed at least nine months of drug

treatment. Patients' cognition and behavior scores improved following nine months of simufilam treatment, with no safety issues.

592. **Fact No. 22.** In July 2021, Cassava also announced positive biomarker data from its open-label study. Six months of open label treatment with simufilam robustly improved CSF biomarkers in a cohort of 25 patients with mild-to-moderate Alzheimer's disease.

593. **Fact No. 23.** In August 2021, Cassava announced it had reached agreement with FDA under a Special Protocol Assessment (SPA) for both Phase 3 studies. These SPA agreements document that FDA had reviewed and agreed upon the key design features of the Phase 3 study protocols of simufilam for the treatment of patients with Alzheimer's disease.

594. **Fact No. 24.** In September 2021, Cassava announced top-line results of a third interim analysis of the open-label study with simufilam. This interim analysis summarized clinical data on the first 50 patients who had completed at least twelve months of drug treatment. Patients' cognition and behavior scores both improved following twelve months of simufilam treatment, with no safety issues.

595. **Fact No. 25.** In October 2021, Cassava announced initiation of its first Phase 3 study. The first Phase 3 study, called RETHINK-ALZ, is designed to evaluate the safety and efficacy of oral simufilam 100 mg over 52 weeks. In November 2021, Cassava announced initiation of its second Phase 3 study. The second Phase 3 Study, called REFOCUS-ALZ, is designed to evaluate the safety and efficacy of oral simufilam 100 mg and 50 mg over 76 weeks. Both Phase 3 Studies are being performed with the assistance of highly qualified, independent professionals.

596. **Fact No. 26.** In January 2023, Cassava announced final top-line results for the first 12-month open-label phase of the study. The data showed that the average change in cognition

(ADAS-Cog scores) was less than would be expected for Alzheimer's patients over the course of 12 months. Efficacy outcomes were analyzed by an independent, outside biostatistical consulting firm, Pentara, led by Dr. Suzanne Hendrix.

597. **Fact No. 27.** In July 2023, Cassava announced the results of a six-month randomized, placebo-controlled withdrawal phase of the study. The study showed encouraging results. Mild-to-moderate patients taken off simufilam declined in cognition on average more than patients who remained on the drug. Mild patients who remained on simufilam actually improved slightly in cognition over the six month period, while those on placebo declined.

598. **Fact No. 28.** In February 2024, Cassava announced the results of the final six months of the trial. The full 24-month study allowed comparisons of patients who took simufilam continuously versus those who took simufilam with a 6-month interruption. Over the two-year study, the patients who were categorized as mild AD on Day 1 and who took simufilam continuously showed no decline. The mild AD patients who received placebo during the randomized withdrawal period declined by 1 point.

599. **Fact No. 29.** Cassava did not rely upon any fabricated research in connection with developing simufilam. Nor was the research relied upon by Cassava in connection with developing simufilam fabricated. The underlying research and backup for the underlying research demonstrate that the research relied upon by Cassava in connection with developing simufilam was not fabricated.

600. **Fact No. 30.** Cassava did not fabricate the studies conducted on simufilam. Nor were the studies fabricated by the laboratories, scientists, and doctors involved with the studies.

The underlying studies, tests, intake procedures, and analysis demonstrate that the studies conducted on simufilam were not fabricated, manipulated, or doctored.

601. **Fact No. 31.** The research relied upon by Cassava for the development of simufilam and studies conducted on simufilam do not contain material errors or undisclosed anomalies. The information included in the research and studies are consistent with the testing protocols, testing results, peer-reviewed publications and studies. The underlying research and studies, as well as peer-reviewed publications and studies, demonstrate that Cassava's research and studies do not contain material errors or undisclosed anomalies.

602. **Fact No. 32.** The anomalies that have been raised with respect to Cassava's published testing results have non-fraudulent and non-manipulative reasons. Cassava and others provided scientifically valid and reasonable explanations for the anomalies that are more reasonable and consistent with other information than a conclusion of fraud. The conclusion that the anomalies are evidence of fraud or manipulation is not reasonable.

603. **Fact No. 33.** The testing results published by Cassava were done by individuals who were "blind" to whether they were analyzing samples from a patient who took a placebo or simufilam.

604. **Fact No. 34.** Much of the research relied upon by Cassava for development of simufilam was independently reviewed by the publishing journals during and after the disinformation campaign. None of the publishing journals have identified evidence of fabrication, manipulation or doctoring of information, including relating to Western blot analysis.

### C. Defendants Acted with Reckless Disregard By Making Defamatory Statements They Knew Were Inherently Improbable.

605. Defendants' statements and implications about Cassava were inherently improbable, which signaled to Defendants that publishing the statements and implications was

with reckless disregard for the truth. Defendants accused Cassava of engaging in fraudulent and illegal activities, including the fabrication of testing results, when they knew that conclusion was inherently improbably given the rigorous scientific review around the drug and its development.

606. One, Cassava's foundational science and testing results for simufilam were published and made publicly available years to months prior to Defendants' disinformation campaign. Cassava's foundational science and testing results were not characterized as fabricated, manipulated, and doctored by Defendants until the Company's stock price was high enough for them to profitably conduct their disinformation campaign. Cassava's foundational science and testing results would have been called out as fabricated, manipulated, and doctored, including by the SEC, a long time ago and prior to Defendants initiating their disinformation campaign if they had been fabricated, manipulated, and doctored.

607. Two, Defendants' statements and implications about Cassava were also inherently improbable based upon the wide range of independent journals, institutions, and entities involved with Cassava's research and clinical testing. As set forth above, not only have researchers at Yale University, the University of Milan, and Cochin Institute corroborated the foundational science behind simufilam, but numerous independent actors have been intimately involved with the implementation and analysis of the clinical trials. It is inherently improbable that Cassava is a fraud and its science is "all made up" given the vast number of independent actors who have been involved with, or independently corroborated, Cassava's claims.

608. Three, Defendants' statements and implications about Cassava were inherently improbable given Cassava's open discussion of its testing. Cassava publicly discussed and publicly shared its testing results for simufilam when initial biomarker data for its Phase 2b study showed inconsistent and inexplicably high values or variations. Cassava shared the testing results in press

releases, SEC filings, and conferences. Cassava opened its testing results to scrutiny and review in good times and bad. Cassava would not have been transparent with its testing results in good times and bad if Cassava was a fraud relying on fabricated research and testing results.

609. Four, the underlying science for simufilam has been published in peer-reviewed journals, including *Journal of Neuroscience*, *Neurobiology of Aging*, *Journal of Biological Chemistry*, *Neuroimmunology and Neuroinflammation*, and *Journal of Prevention of Alzheimer's Disease.* None of these peer-reviewed journals have withdrawn any of the articles on the underlying science. These journals would not have published the articles if Cassava was relying on fabricated research and testing results.

610. Five, Cassava also received multiple grants from the NIH relating to simufilam. In April 2020, the NIH awarded Cassava a $2.5 million research grant following an "in-depth, peer review of [simufilam]." (Ex. 36.) In May 2021, the NIH awarded Cassava a $2.7 million research grant following "peer review of clinical and scientific data for simufilam." (Ex. 53.) Peer review is a process where independent, outside scientists evaluate the merits of new research. NIH would not have awarded Cassava research grants if the Company was a fraud relying on fabricated research and testing results.

611. Six, Defendants knew that Cassava executives and board members had invested time and money into the Company, which, along with its work, was reviewed and scrutinized by federal regulators. Defendants knew research relating to simufilam had been reviewed and scrutinized by scientific journals and independent scientists, and research relating to simufilam had been generated, then published, by an outside scientist. Cassava and its executives would not spend millions of dollars developing and testing a fake drug.

### D. Additional Circumstantial Evidence Demonstrates the Defendants Acted with Actual Malice.

612. Defendants' actual malice in publishing the defamatory statements about Cassava are further illustrated by the fact that (1) they published statements that were inconsistent and inexplicable based on common scientific knowledge of which they, as scientists, were aware, (2) they repeated and refused to withdraw their defamatory statements even after Cassava corrected their statements and provided further explanations for why their statements were wrong, and (3) they were motivated to publish defamatory statements about Cassava for personal financial reason, animus toward Cassava's management, and the pursuit of personal fame.

613. **Inconsistent with Common Knowledge.** Some of the Defendants' defamatory statements, for examples those commenting on posts by Dr. Bik, were related to alleged data manipulation in connection with Western blotting. Defendants ignored common knowledge within the scientific community about Western blotting.

a. It was (and is) common knowledge in the scientific community that the production of Western blots images is prone to visual abnormalities. Visual problems can arise from unusual or unexpected bands, faint bands, weak protein signals, high background on the blot, patchy or uneven spots, and so on. None of these visual abnormalities are necessarily indicators of fabricated, manipulated, or doctored analysis.

b. It was (and is) common knowledge in the scientific community that the process of preparing Western blot images for publication can include image cropping, splicing or other acceptable forms of image manipulations. None

of these visual edits are necessarily indicators of fabricated, manipulated, or doctored analysis.

c. It was (and is) common knowledge in the scientific community that "issues" or "inconsistencies" with Western blot images can be caused by unintentional human error by the author, journal editor, printer, etc. "Issues" and "inconsistencies" related to unintentional human error are not necessarily indicators of fabricated, manipulated, or doctored analysis.

d. It was (and is) common knowledge in the scientific community that "issues" and "inconsistencies" with Western blot analysis may not change the data conclusions reached in the underlying research and studies. "Issues" and "inconsistencies" that are irrelevant to data conclusions are not necessarily indicators of fabricated, manipulated, or doctored analysis.

614. All of the Defendants are scientists. They have been trained as scientists. They have studied to be scientists. And they stay abreast and familiar with scientific publications. As a result, they should be familiar with these common scientific principles and further should have understood that their statements were inconsistent with these common scientific principles.

615. Moreover, Defendants' specialized knowledge, experience, and educational and scientific backgrounds also show that their false statements about the safety, efficacy, and the scientific support for simufilam were made with actual malice. For example, Heilbut has a PhD in Bioinformatics and Computational Biology; Brodkin has worked in preclinical research for decades. Their education and training, especially related to clinical research and data analyses, means that they knew or should have known that their statements were false. They have the tools

needed to understand the scientific mechanism supporting simufilam's potential use case, set forth in multiple studies and academic papers, but instead choose to distort the research findings.

616. **Repetition and republication.** As discussed above, Cassava published multiple reports correcting the misinformation published by the Defendants and others about simufilam and its testing of simufilam. Cassava also filed a complaint against the Defendants to correct their misinformation about simufilam and its testing of simufilam. Defendants were familiar with these corrective statements as discussed above.

617. Defendants did not correct or retract their defamatory statements after learning of the corrective statements provided by Cassava. Instead, Defendants repeated the same or similar disinformation about Cassava. Defendants' refusal to retract and repetition of the disinformation after receipt of corrective information evidences an intent to defame Cassava during the original and subsequent publications.

618. This remains true to this day, even after FDA has continued to approve Cassava's Phase 3 clinical trials and additional research has been published in peer-reviewed journals confirming Cassava's science. Defendants' continued defamatory attacks on Cassava notwithstanding this new information evidence that Defendants were never interested in publishing accurate information about Cassava but only disinformation.

619. **Improper motive.** Each of the Defendants acted with an ill and improper motive when publishing his defamatory statements about Cassava. Each of the Defendants held short positions in Cassava's stock. Defendants published and republished false and defamatory statements about Cassava to lower its stock price so the Defendants could profit from their short positions. Defendants' motive was to make money on their short position by defaming Cassava.

620. Defendants did not act to promote scientific debate or address a matter of public concern. Nor did they contact Cassava to discuss any concerns prior to publishing their Defamatory Statements. Cassava was not a matter of public concern prior to Defendants' disinformation campaign. Defendants manufactured a "controversy" over Cassava through their disinformation campaign. Defendants did not do so based on genuine concerns with Cassava but rather to profit from a stock price decline they caused.

621. Defendants acted with the specific intent to harm Cassava. Defendants accused Cassava of relying on fraudulent research, manufacturing fraudulent testing results, and lying to the public, investors, and federal agencies. Defendants accused Cassava and its executives of criminal activity punishable by imprisonment. Defendants knew these accusations would cause irreparable harm to Cassava's reputation and intended to cause that harm.

## VIII. DEFENDANTS' DISINFORMATION WAS NOT PROTECTED OPINION[8]

622. Defendants did not present their publications as pure opinion about Cassava. Nor did Defendants intend for readers to believe that their publications were pure opinion about Cassava. To the contrary, Defendants presented and intended for their publications to be read as providing facts about Cassava. Defendants' scheme required readers to believe their false and defamatory statements were facts about Cassava so that Cassava's stock price would decline.

623. Additionally, the context of the statements, including their impact on readers, their reference to "investigations" and "evidence," the way they were conveyed repeatedly and in

[8] Defendants published factually inaccurate and defamatory statements about Cassava. However, Defendants presented their publications as providing facts and factually accurate information about Cassava. Defendants' scheme was effective, in part, because Defendants persuaded individuals who read their publications that they were providing facts, even though they were not.

response to detractors, their omission of important information, and their demonstrable falsity all support the fact that they are statements of fact and not opinion, conjecture, or hyperbole.

**A. Impact on Readers**

624. Individuals who read Defendants' publications understood Defendants were (ostensibly) providing facts about Cassava, its foundational science, and its testing of simufilam. Individuals who read Defendants' publication acted based on what they read about Cassava.

625. One, individuals who read Defendants' publications made trading decisions based on what they read. Individuals sold Cassava's stock, leading to the stock price declining. On the flip side, individuals were discouraged from purchasing Cassava's stock, leading to the stock price declining further. Defendants intended for individuals to trade based on their statements—indeed, they included references to "$SAVA," a tag that links to posts about the company's stock—to ensure that people interested in the stock would see their posts. Defendants intended for individuals to believe that they were providing facts about Cassava so that they would rely on that information to make investment decisions.

626. Two, individuals began to criticize Cassava after reading, and based upon, Defendants' publications. For example, on social media, individuals who read Defendants' false and defamatory statements began to echo those false and defamatory statements about Cassava. This too was part of Defendants' scheme. Defendants intended for individuals who read their publications to believe they were providing facts about Cassava so that the false and defamatory statements would be republished and repackaged by others. This also contributed to decreasing Cassava's stock price.

627. Three, third parties conducted independent investigation relating to Cassava after reading, and based upon, Defendants' publications. For example, multiple science editors conducted independent investigations into journal articles they had published about Cassava's

foundational science and testing of simufilam. The editors did so because Defendants presented their publications as providing facts about Cassava; and, if the facts were true, it would raise concerns about the articles. Each journal, of course, concluded there was no evidence (or no compelling evidence) of the manipulation that Defendants claimed occurred.

628. Four, law firms filed securities fraud class actions against Cassava after reading, and based on, Defendants' publications. The law firms did not read Defendants' publications as conjecture, speculation, and/or pure opinion. The law firms read Defendants' publications as providing facts about Cassava and the law firms acted as if Defendants' publications were providing facts. Cassava has moved to dismiss the putative class action as without merit.

629. Five, CUNY initiated an internal investigation of Dr. Wang after reading and based on Defendants' publications. CUNY officials did not read Defendants' publications as conjecture, speculation, and/or pure opinion. CUNY officials read Defendants' publications as providing facts about Cassava's research and acted as if Defendants' publications were providing facts.

**B. Response to Criticism, Support, and Repetition**

630. Defendants engaged in a sustained campaign against Cassava. This had the effect of conveying to individuals who read their publications that Defendants were providing facts about Cassava.

631. One, Defendants responded to Cassava and others who attempted to correct the record. As noted above, Cassava and others published information correcting some of the false and defamatory statements made by the Defendants. Defendants, in turn, responded to the accurate information provided by Cassava and others with additional false and defamatory statements.

Defendants did so to undermine credibility of those who were providing accurate information and persuade readers that Defendants were the ones providing facts about Cassava.

632. Two, Defendants supported and reinforced others who were spreading disinformation about Cassava. By doing so, Defendants further spread disinformation about Cassava and lent credibility to the statements made by others. Defendants' repetition of the statements by others defaming Cassava furthered the impression that the statements were facts about Cassava, not speculation, conjecture, or pure opinion.

633. Three, Defendants repeated their statements about Cassava on multiple occasions. Defendants repetition of the statements served to create the impression that the statements were facts about Cassava. Facts do not change. Defendants' repetition of the statements, notwithstanding corrections being provided by Cassava and others, signaled that they (Defendants) were providing facts that would not change regardless of what Cassava and others said.

**C. Concealing Bias and Motive**

634. One, Defendants disclosed in some, but not all, of their publications that they held a short position in Cassava stock. In all cases, Defendants did not disclose (a) when they took a short position, (b) the short position they took, and (c) the amount of money they would make when Cassava's stock price declined. Defendants did not provide readers with sufficient information about their short positions to independently evaluate how the short positions impacted the credibility of Defendants' publications.

635. Two, Defendants failed to disclose that they were publishing their false and defamatory statements about Cassava to drive down the price of Cassava stock. Defendants portrayed themselves as having an altruistic motivation—they said they were publishing their statements about Cassava to protect Alzheimer's patients, spur FDA action, inform government agencies of wrongdoing, and educate the public. On information and belief, these were not their

motives. Defendants made their false and defamatory statements about Cassava to drive down the price of Cassava's stock, an objective Defendants concealed from readers.

636. Three, Defendants failed to disclose the many conflicts of interest of sources. For example, some of the Defendants supported posts by Dr. Elizabeth Bik. Dr. Bik receives significant funding from her on-line "Patreon" account. Her "patrons" donate money to her anonymously as a "reward" for her work "investigating" and "exposing" alleged data manipulation. None of the Defendants disclosed her financial bias.

637. Defendants did not disclose their motive and bias, nor the motive and bias of sources, so to bolster their credibility. Defendants' limited (or non-existent) disclosures prevented individuals who read their publications from independently evaluating the information and drawing their own conclusions.

**D. Failure to Disclose Facts**

638. Defendants did not provide accurate and complete information in their statements. This prevented the readers from being able to independently evaluate the information provided in their statements and reach their own conclusions. Readers were forced to rely upon the conclusions provided by Defendants.

639. Moreover, Defendants undermined the credibility of Cassava and others who provided accurate information about Cassava, its foundational science, and its testing of simufilam. Defendants did so by conveying that Cassava is a fraud that relies on fraudulent research and testing. As a result, even when available, readers would not believe the accurate information provided by Cassava and others. Defendants made sure of that with their message—Cassava is a fraud.

640. The following are some of the facts that Defendants failed to disclose about Cassava, its foundational science, and its testing of simufilam. On information and belief,

Defendants knew of these facts at the time of their publications. Cassava makes this allegation based on the following: (a) Defendants referenced Cassava's SEC filings and press releases in some of their publications and/or republications, (b) Defendants claimed to be responding to Cassava's press releases in some of their publications and/or republications, (c) the Defendants are scientists and would know how to locate journal articles, (d) each of the Defendants claimed that Cassava's science was unfounded or unprecedented, which means that they (i) conducted searches for relevant journal articles and (ii) would have discovered journal articles as part of that search, (e) Defendants claimed to have been investigating and reviewing information about Cassava prior to publishing their false and defamatory statements, and (f) Defendants shorted Cassava's stock prior to publishing their false and defamatory statements, which would have made them interested in tracking publicly available information about Cassava that could impact its stock price.

641. One, Defendants failed to disclose that they lacked a reliable basis for the statements they made about the research relied upon by Cassava for development of simufilam, including Western blot analysis. Among other things, Defendants lacked access to the testing results and information that would have allowed them to assess material errors or undisclosed anomalies with the Western blot analysis.

642. Two, Defendants failed to disclose that the images of the Western blot analysis included in their publications were not reliable as they were, at least, reprints of reprints as opposed to original images. Defendants' failure to disclose the compromised and poor quality of their images prevented an accurate evaluation of the images by readers of their publications, thereby forcing readers to rely upon Defendants' conclusions about the Western blot analysis.

643. Three, Defendants failed to disclose that "issues" or "inconsistencies" with Western blot analysis are not necessarily indicators of fabricated, manipulated, or doctored analysis. Each

"issue" and "inconsistency" referred to by Defendants in their publications can be caused by adjusting and/or compression the digital image for publication, an accepted practice at the time of publication, or an unintentional error.

644. Four, Defendants failed to disclose that the "issues" and "inconsistencies" referred to by Defendants in their publications relating to Western blot analysis did not and would not change the data conclusions ultimately reached in the research and studies. Western blots are demonstrative. They are not quantitative evidence. The qualitative value of Western blot analysis must always be weighed against the dangers of unfair prejudice and issue confusion. Defendants' failure to disclose these facts improperly led readers to conclude that "issues" or "inconsistencies" with Western blots undermine the credibility and conclusion of the study. They do not.

**E. Demonstrably False**

645. Defendants' statements about Cassava were (and are) demonstrably false. Cassava has not engaged in fraudulent or illegal activity, Cassava is not a fraud, its underlying research is not fabricated, and its testing results for simufilam are not fabricated.

646. The nature of Defendants' statements lends itself to being proven demonstrably false or not. Defendants stated that Cassava engaged in fraudulent and illegal activity. That either happened or it did not. It is a factual assertion. Cassava can prove it did not happen, thereby demonstrating factual inaccuracy.

647. Defendants stated that Cassava's foundational science has been manipulated, fabricated, and doctored. That either happened or it did not. It is a factual assertion. Cassava can prove that did not happen, thereby demonstrating factual inaccuracy.

648. Defendants stated that Cassava's testing results for simufilam have been manipulated, fabricated, and doctored. That either happened or it did not. It is a factual assertion. Cassava can prove that did not happen, thereby demonstrating factual inaccuracy.

649. Defendants stated that simufilam does not work and does not have the effect on biomarkers and cognition reported by Cassava. It either does or does not. It is a factual assertion. Cassava can prove that simufilam had the reported effects, thereby demonstrating factual inaccuracy.

650. Defendants stated that Cassava is a fraud. It either is or is not. It is a factual assertion. Cassava can prove it is not fraud, thereby demonstrating factual inaccuracy.

## IX. DEFENDANTS CAUSED SIGNIFICANT AND IRREPARABLE DAMAGE

651. Defendants saw the growth of Cassava and its increasing stock price as an opportunity to make money. They used their disinformation campaign to continue to drive down and deflate the Company's stock at a time when they were holding short positions in the stock, timing the release of their disinformation such that they would get the biggest bang for their buck. The predictable and natural result of Defendants' campaign was to hurt the Company's reputation, undermine confidence in the Company's research and drug, disrupt the Company's ongoing clinical studies, tank the Company's share value, and force the Company to incur hundreds of thousands of dollars in out-of-pocket expenses to combat the ongoing harm to its reputation.

652. Defendants were intentional about how and where they published their factually inaccurate and defamatory statements about Cassava. They published factually inaccurate and defamatory statements online where they could be shared easily. They further engaged in an extensive social media campaign, posting links to open-access websites they created with inflammatory names—"cassavafraud.com" and "simuflimflam.com"—knowing these would drive engagement, be reposted and shared extensively. They posted memes in which they accused Cassava and its CEO of fraud, knowing that these would go viral. As a result, Defendants' factually

inaccurate and defamatory statements about Cassava were widely and generally disseminated through publication and republication.

**A. Cassava's Reputation**

653. Cassava's name and brand have become synonymous with fraud for many investors, members of the scientific community, and the general public as a result of Defendants' disinformation campaign. Defendants created the impression that simufilam is unsafe and should not be evaluated in people with Alzheimer's disease because it was sponsored by a fraud and based on fabricated research and testing.

654. Defendants intended to create this mistrust and contempt for Cassava with their factually inaccurate and defamatory statements. Defendants could not, through honest trading, cause a material decline in Cassava's stock price. Defendants needed a groundswell of opposition to Cassava to tank the stock price. Defendants achieved their objective.

655. Cassava's name and brand also suffered with government officials, particularly those responsible for funding research. After Defendants launched their disinformation campaign, Cassava could no longer obtain funding from the NIH. Defendants' factually inaccurate and defamatory statements about Cassava were a substantial cause of Cassava no longer obtaining funding from the NIH. Cassava became toxic as a result of Defendants' continued and repeated publications. NIH and others may have wanted to fund research but they could not because of the toxic environment created by Defendants.

656. Other non-profit organizations have likewise walked away from their relationships with Cassava due in part to Defendants' disinformation campaign. The Alzheimer's Association withdrew the Company's sponsorship from several fundraising events. The Alzheimer's Associations and other non-profit organizations have not done so based on any actual concerns about Cassava, its foundational research, or its testing of simufilam. These organizations have done

so because Defendants tarnished Cassava's reputation to such a degree that an affiliation with Cassava is perceived as bad for their organizations.

**2. Cassava's Clinical Research Efforts**

657. Defendants' repeated and ongoing statements also played a role in multiple clinical research sites withdrawing from Cassava's clinical research programs. Nine clinical research sites have withdrawn from or avoided participation in the Company's clinical research studies due in part to Defendants' disinformation campaign. The clinical research sites had no reason to withdraw from or avoid participation other than the disinformation campaign against Cassava. They withdrew because Defendants and others created a toxic environment for Cassava, tarnished Cassava's name and brand, and made it unacceptable to work with Cassava. The clinical research sites did not withdraw from or avoid participation in the Company's clinical research studies due to actual concerns with Cassava, its foundational research, or its testing of simufilam.

658. The shuttering of clinical research sites as a result of the disinformation campaign against Cassava (of which Defendants were part) also caused patient enrollment in Cassava's clinical research studies to slow. Although Cassava's Phase 3 trials are fully enrolled, it took significantly longer to reach full enrollment for those trials as a result of the Defendants' defamatory statements. No other event has taken place that would have contributed to or caused a decrease in participation.

659. This combination—clinical sites withdrawing and participation declining—has set Cassava back in its efforts to complete testing of simufilam. To date, Cassava's testing has shown that simufilam may be a potentially promising treatment for Alzheimer's disease. An independent Data and Safety Monitoring Board has conducted interim evaluations of simufilam's safety and greenlit further Phase 3 studies without modification. But top-line results from Cassava's Phase 3 studies are not expected until the end of 2024 and halfway through 2025—dates that have been

pushed back over a year due to slowed enrollment caused by the Defendants' defamatory statements.

660. Cassava must complete its testing before simufilam can be approved by the FDA and made available for people suffering from Alzheimer's disease. Defendants' disinformation campaign has delayed Cassava's attempts to bring a treatment to patients, so they (Defendants) could make money playing the stock.

### 3. Cassava's Stock Price and Business Valuation

661. Defendants got what they wanted. Their branding of Cassava as a fraud significantly diminished its business value and prospects. Before Defendants' disinformation campaign, Cassava's stock was trading at around $50 per share. Since the disinformation campaign, of which Defendants were a part, Cassava's stock has been trading at under $25 per share. Defendants' disinformation campaign has had a lingering, negative impact on Cassava's stock price, caused at least in part by the fact that Defendants have continued their disinformation campaign through the present. The campaign was a substantial cause of Cassava's stock price decline and the loss of more than $2 billion in market capitalization.[9]

662. Defendants achieved this objective by rebranding Cassava as toxic for investors. Investors who held Cassava stock were encouraged to sell the stock because of the disinformation campaign. On the flip side, investors who would have purchased Cassava stock were discouraged from doing so because of the disinformation campaign. Cassava's stock price plummeted as a

[9] The long-term effects of the campaign are not only impacting Cassava in the short term, but may impact simufilam's time to market which, should simufilam be beaten to market by one of its competitor drugs, will have devastating effects on its market share.

result of the disinformation campaign, of which Defendants were a part. Defendants needed Cassava's stock price to tank to make a profit on their short positions. They got it.

663. Cassava stockholders were, of course, likewise harmed by Defendants' disinformation campaign. Investors understand that they are investing in a company's reputation when purchasing their stock. Investors expect the stock price to reflect publicly available information about the company. Investors do not expect that the stock price of a company will be artificially deflated by disinformation. Defendants adopted the unorthodox and unlawful strategy of using disinformation about Cassava to artificially deflate its stock price, which hurt Cassava and the people and organizations who had invested in the Company.

**4. Additional and Unexpected Expenses**

664. The widespread distribution of Defendants' publications have created an ongoing crisis for Cassava. Cassava's reputation has been irreparably tarnished. Its officers and employees have been threatened and harassed. Its operations have come under attack—physically and electronically. Those are just some of the personal consequences of Defendants' disinformation campaign.

665. The disinformation campaign, including the Defendants' disinformation, was also a substantial factor in causing other out-of-pocket expenses. Cassava spent over $1,000,000 identifying and securing additional clinical sites to conduct further testing on simufilam. Cassava had clinical sites lined up. Cassava needed to spend more time and money finding new clinical sites to conduct its tests due to Defendants' thorough tarnishing of its reputation.

666. In addition, the disinformation campaign by Defendants and others was a substantial factor in causing shareholder lawsuits to be filed against Cassava. Around the same time Defendants began their disinformation campaign, the lawsuit captioned *In re Cassava Sciences, Inc. Securities Litigation*, No. 1:21-cv-00751-DAE was filed in the Western District of

Texas. Numerous other cases were subsequently filed. Many of the allegations in the complaints parrot the allegations made by the Defendants. To date, Cassava has spent in excess of $5,000,000 defending against these meritless allegations.

## CAUSES OF ACTION

### Count 1: Defamation Against Defendant Heilbut

667. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 666 as if fully stated herein.

668. Defendant Heilbut published and republished false statements and implications about Cassava, including but not limited to stating and implying that Cassava is a fraud that relies on fabricated research and fabricated testing results. The false statements and implications are pleaded throughout the Complaint and in the attached Exhibits, which set forth the particular words and statements used in Defendant Heilbut's publications. The false implications were intentionally made through the false statements, by other statements that were misleading due to material omissions, by presenting misleading juxtapositions of statements, and when considering the context of each publication. The false implications were also made through the defamation campaign as a whole.

669. Defendant Heilbut's false statements and implications were and would reasonably be understood to be statements of fact about Cassava.

670. Defendant Heilbut's false statements and implications were and would reasonably be understood by third parties to have a defamatory character.

671. Defendant Heilbut's false statements and implications were intended and endorsed by Defendant Heilbut.

672. Defendant Heilbut's statements and implications were false and factually inaccurate for the reasons stated throughout the Complaint.

673. Defendant Heilbut's statements and implications were broadcast and published without privilege or legal authorization, and if there was any such privilege or authorization (and there was not) it was intentionally abused.

674. Defendant Heilbut's statements and implications were published and republished to third parties. Defendant Heilbut knew and intended for his false and defamatory statements and implications to be republished to and by third parties. Among others, Defendant Heilbut's publications and republications with these false statements and implications were widely disseminated by the Defendants.

675. Defendant Heilbut's statements and implications were defamatory because they exposed Cassava to public hate, contempt, ridicule, and disgrace, and because they induced an evil and unsavory opinion of Cassava and its business into the minds of a substantial number of the community.

676. Defendant Heilbut's statements and implications were defamatory *per se* because they charged Cassava with a serious crime, including fraud, and were of a nature tending to injure Cassava in its trade, business, and profession.

677. Defendant Heilbut acted with fault, at least negligence, and with actual malice. Defendant Heilbut knew that his defamatory statements and implications were false, or acted with reckless disregard for the truth or falsity of the statements and implications, when he published and republished the defamatory statements and implications. Allegations related to Defendant Heilbut's actual malice are pled throughout the Complaint.

678. Defendant Heilbut also acted to deliberately and maliciously injure Cassava out of hatred, ill-will or spite, and/or for improper motives. Among other things, Defendant Heilbut acted to make a profit by disseminating false and defamatory statements about Cassava, which would cause its stock price to decline and allow him to make a profit on his short position.

679. Defendant Heilbut's false statements and implications were a substantial factor in causing Cassava to suffer irreparable harm to its reputation and suffer economic loss. Cassava is thus entitled to compensatory damages.

680. As a direct and proximate result of Defendant Heilbut's false statements and implications, Cassava has also suffered and will continue to suffer actual, consequential, and special damages in an amount that will be determined at trial.

681. Cassava is also entitled to punitive damages because Defendant Heilbut acted with actual malice, ill will, and spite towards Cassava and for improper motives.

**Count 2: Defamation Against Defendant Milioris**

682. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 666 as if fully stated herein.

683. Defendant Milioris published and republished false statements and implications about Cassava, including but not limited to stating and implying that Cassava is a fraud that relies on fabricated research and fabricated testing results. The false statements and implications are pleaded throughout the Complaint and in the attached Exhibits, which set forth the particular words and statements used in Defendant Milioris's publications. The false implications were intentionally made through the false statements, by other statements that were misleading due to material omissions, by presenting misleading juxtapositions of statements, and when considering the context of each publication. The false implications were also made through the defamation campaign as a whole.

684. Defendant Milioris's false statements and implications were and would reasonably be understood to be statements of fact about Cassava.

685. Defendant Milioris's false statements and implications were and would reasonably be understood by third parties to have a defamatory character.

686. Defendant Milioris's false statements and implications were intended and endorsed by Defendant Milioris.

687. Defendant Milioris's statements and implications were false and factually inaccurate for the reasons stated throughout the Complaint.

688. Defendant Milioris's statements and implications were broadcast and published without privilege or legal authorization, and if there was any such privilege or authorization (and there was not) it was intentionally abused.

689. Defendant Milioris's statements and implications were published and republished to third parties. Defendant Milioris knew and intended for his false and defamatory statements and implications to be republished to and by third parties. Among others, Defendant Milioris's publications and republications with these false statements and implications were widely disseminated by the Defendants.

690. Defendant Milioris's statements and implications were defamatory because they exposed Cassava to public hate, contempt, ridicule, and disgrace, and because they induced an evil and unsavory opinion of Cassava and its business into the minds of a substantial number of the community.

691. Defendant Milioris's statements and implications were defamatory *per se* because they charged Cassava with a serious crime, including fraud, and were of a nature tending to injure Cassava in its trade, business, and profession.

692. Defendant Milioris acted with fault, at least negligence, and with actual malice. Defendant Milioris knew that his defamatory statements and implications were false, or acted with reckless disregard for the truth or falsity of the statements and implications, when he published and republished the defamatory statements and implications. Allegations related to Defendant Milioris's actual malice are pled throughout the Complaint.

693. Defendant Milioris also acted to deliberately and maliciously injure Cassava out of hatred, ill-will or spite, and/or for improper motives. Among other things, Defendant Milioris acted to make a profit by disseminating false and defamatory statements about Cassava, which would cause its stock price to decline and allow him to make a profit on his short position.

694. Defendant Milioris's false statements and implications were a substantial factor in causing Cassava to suffer irreparable harm to its reputation and suffer economic loss. Cassava is thus entitled to compensatory damages.

695. As a direct and proximate result of Defendant Milioris's false statements and implications, Cassava has also suffered and will continue to suffer actual, consequential, and special damages in an amount that will be determined at trial.

696. Cassava is also entitled to punitive damages because Defendant Milioris acted with actual malice, ill will, and spite towards Cassava and for improper motives.

**Count 3: Defamation Against Defendant Brodkin**

697. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 666 as if fully stated herein.

698. Defendant Brodkin published and republished false statements and implications about Cassava, including but not limited to stating and implying that Cassava is a fraud that relies on fabricated research and fabricated testing results. The false statements and implications are pleaded throughout the Complaint and in the attached Exhibits, which set forth the particular words and statements used in Defendant Brodkin's publications. The false implications were intentionally made through the false statements, by other statements that were misleading due to material omissions, by presenting misleading juxtapositions of statements, and when considering the context of each publication. The false implications were also made through the defamation campaign as a whole.

699. Defendant Brodkin's false statements and implications were and would reasonably be understood to be statements of fact about Cassava.

700. Defendant Brodkin's false statements and implications were and would reasonably be understood by third parties to have a defamatory character.

701. Defendant Brodkin's false statements and implications were intended and endorsed by Defendant Brodkin.

702. Defendant Brodkin's statements and implications were false and factually inaccurate for the reasons stated throughout the Complaint.

703. Defendant Brodkin's statements and implications were broadcast and published without privilege or legal authorization, and if there was any such privilege or authorization (and there was not) it was intentionally abused.

704. Defendant Brodkin's statements and implications were published and republished to third parties. Defendant Brodkin knew and intended for his false and defamatory statements and implications to be republished to and by third parties. Among others, Defendant Brodkin's publications and republications with these false statements and implications were widely disseminated by the Defendants.

705. Defendant Brodkin's statements and implications were defamatory because they exposed Cassava to public hate, contempt, ridicule, and disgrace, and because they induced an evil and unsavory opinion of Cassava and its business into the minds of a substantial number of the community.

706. Defendant Brodkin's statements and implications were defamatory *per se* because they charged Cassava with a serious crime, including fraud, and were of a nature tending to injure Cassava in its trade, business, and profession.

707. Defendant Brodkin acted with fault, at least negligence, and with actual malice. Defendant Brodkin knew that his defamatory statements and implications were false, or acted with reckless disregard for the truth or falsity of the statements and implications, when he published and republished the defamatory statements and implications. Allegations related to Defendant Brodkin's actual malice are pled throughout the Complaint.

708. Defendant Brodkin also acted to deliberately and maliciously injure Cassava out of hatred, ill-will or spite, and/or for improper motives. Among other things, Defendant Brodkin acted to make a profit by disseminating false and defamatory statements about Cassava, which would cause its stock price to decline and allow him to make a profit on his short position.

709. Defendant Brodkin's false statements and implications were a substantial factor in causing Cassava to suffer irreparable harm to its reputation and suffer economic loss. Cassava is thus entitled to compensatory damages.

710. As a direct and proximate result of Defendant Brodkin's false statements and implications, Cassava has also suffered and will continue to suffer actual, consequential, and special damages in an amount that will be determined at trial.

711. Cassava is also entitled to punitive damages because Defendant Brodkin acted with actual malice, ill will, and spite towards Cassava and for improper motives.

**Count 4: Defamation Against Defendant Markey**

712. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 666 as if fully stated herein.

713. Defendant Markey published and republished false statements and implications about Cassava, including but not limited to stating and implying that Cassava is a fraud that relies on fabricated research and fabricated testing results. The false statements and implications are pleaded throughout the Complaint and in the attached Exhibits, which set forth the particular words and statements used in Defendant Markey's publications. The false implications were intentionally made through the false statements, by other statements that were misleading due to material omissions, by presenting misleading juxtapositions of statements, and when considering the context of each publication. The false implications were also made through the defamation campaign as a whole.

714. Defendant Markey's false statements and implications were and would reasonably be understood to be statements of fact about Cassava.

715. Defendant Markey's false statements and implications were and would reasonably be understood by third parties to have a defamatory character.

716. Defendant Markey's false statements and implications were intended and endorsed by Defendant Markey.

717. Defendant Markey's statements and implications were false and factually inaccurate for the reasons stated throughout the Complaint.

718. Defendant Markey's statements and implications were broadcast and published without privilege or legal authorization, and if there was any such privilege or authorization (and there was not) it was intentionally abused.

719. Defendant Markey's statements and implications were published and republished to third parties. Defendant Markey knew and intended for his false and defamatory statements and implications to be republished to and by third parties. Among others, Defendant Markey's publications and republications with these false statements and implications were widely disseminated by the Defendants.

720. Defendant Markey's statements and implications were defamatory because they exposed Cassava to public hate, contempt, ridicule, and disgrace, and because they induced an evil and unsavory opinion of Cassava and its business into the minds of a substantial number of the community.

721. Defendant Markey's statements and implications were defamatory *per se* because they charged Cassava with a serious crime, including fraud, and were of a nature tending to injure Cassava in its trade, business, and profession.

722. Defendant Markey acted with fault, at least negligence, and with actual malice. Defendant Markey knew that his defamatory statements and implications were false, or acted with reckless disregard for the truth or falsity of the statements and implications, when he published and republished the defamatory statements and implications. Allegations related to Defendant Markey's actual malice are pled throughout the Complaint.

723. Defendant Markey also acted to deliberately and maliciously injure Cassava out of hatred, ill-will or spite, and/or for improper motives. Among other things, Defendant Markey acted to make a profit by disseminating false and defamatory statements about Cassava, which would cause its stock price to decline and allow him to make a profit on his short position.

724. Defendant Markey's false statements and implications were a substantial factor in causing Cassava to suffer irreparable harm to its reputation and suffer economic loss. Cassava is thus entitled to compensatory damages.

725. As a direct and proximate result of Defendant Markey's false statements and implications, Cassava has also suffered and will continue to suffer actual, consequential, and special damages in an amount that will be determined at trial.

726. Cassava is also entitled to punitive damages because Defendant Markey acted with actual malice, ill will, and spite towards Cassava and for improper motives.

**Count 5: Conspiracy to Defame Cassava By and Among the Defendants (Defendants Heilbut, Milioris, Brodkin, and Markey)**

727. Cassava repeats, realleges, and incorporates by reference Paragraphs 1 to 6656 as if fully stated herein.

728. Defendants Heilbut, Milioris, Brodkin, and Markey knowingly and willfully conspired and agreed among themselves and others to defame Cassava. As alleged in the Complaint, Defendants Heilbut, Milioris, Brodkin, and Markey entered an agreement to publish false and defamatory statements about Cassava in order to drive down the price of Cassava's stock and make a profit from their short positions. Defendants Heilbut, Milioris, Brodkin, and Markey made this agreement prior to publishing their false and defamatory statements about Cassava, as discussed in the Complaint and Appendix. Defendants Heilbut, Milioris, Brodkin, and Markey continued the conspiracy through today.

729. In furtherance of their conspiracy and agreement, among other things, Defendants Heilbut, Milioris, Brodkin, and Markey engaged in the concerted and coordinated campaign to publish false and defamatory statements about Cassava as set forth in the Complaint, including, but not limited to, a disinformation campaign to persuade people that Cassava was (and is) a fraud. The details of the conspiracy and Defendants Heilbut, Milioris, Brodkin, and Markey's actions in further of the conspiracy are set forth in the Complaint.

730. All of the Defendants' actions set forth in the Complaint were in violation of Cassava's rights and committed in furtherance of their conspiracy and agreement to publish disinformation about Cassava to drive down the Company's stock price. Moreover, each of the Defendants aided and encouraged the other, and knowingly ratified and adopted the acts of the

other. Cassava suffered significant damage in an amount to be determined at trial as a proximate result of the wrongful acts of the Defendants.

731. The Defendants' acts constituted malicious conduct that was carried on by Defendants Heilbut, Milioris, Brodkin, and Markey with willful and conscious disregard for Cassava's rights and with the intention of harming Cassava's reputation, artificially deflating its stock price, and making money from the short sale of Cassava's stock.

732. The Defendants' actions constitute despicable conduct that subjected Cassava to cruel and unjust hardship so as to justify an award of exemplary damages. Accordingly, punitive damages should be awarded against the Defendants to punish them and deter them and others from committing such wrongful and malicious acts in the future.

## PRAYER FOR RELIEF

Plaintiff Cassava Sciences, Inc. prays for judgment against Defendants Adrian Heilbut, Enea Milioris, Jesse Brodkin, and Patrick Markey for each of the causes of action raised herein. Plaintiff respectfully requests a judgment in its favor and against Defendants for:

1. Compensatory damages in an amount to be determined at trial;
2. Actual, consequential, and special damages in an amount to be determined at trial;
3. Punitive damages;
4. Reasonable and necessary attorneys' fees;
5. Reasonable and necessary costs of the suit;
6. Prejudgment and post-judgment interest at the highest lawful rates; and
7. Such other and further relief as this Court deems just and appropriate.

**JURY DEMAND**

Plaintiff Cassava Sciences, Inc. demands a trial by a jury of twelve jurors.

Dated: April 29, 2024

*/s/ J. Erik Connolly*

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**CERTIFICATE OF SERVICE**

I, Erik Connolly, hereby certify that a copy of the foregoing Second Amended Complaint as to Defendants Heilbut, Brodkin, Milioris, and Markey, filed through the CM/ECF system, will be sent electronically to the registered participants as identified on the Notice of Electronic Filing (NEF) on April 29, 2024.

Dated: April 29, 2024 */s/ J. Erik Connolly*